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Vol. XI FEBRUARY, 1921 No. 2

VALUE OF ANIMAL EXPERIMENTATION TO MANKIND

GEORGE HOYT WHIPPLE, M. D.

Dean, Medical Department,
University of California,
Berkeley, Cal.

Read at the General Sessions, American Public Health Association, at San Francisco, Cal., September 16, 1920.

IT is impossible to cover the subject as indicated by the title of this paper by anything less than a large book. It is common knowledge to medical workers, but should be repeatedly emphasized in public statements for the information of the public that all our recent advances in medicine, surgery, public health and allied fields are based upon animal experimentation, which is fundamentally essential for future progress. The public has no appreciation of these facts, and this information with suitable illustrative examples cannot be too often emphasized in public addresses.

Because of the lack of sympathy of certain groups of people with medical study and treatment, we are faced with a serious situation at this time in this state. An initiative has been placed on the ballot to be voted on by the people at the November election—called the Antivivisection Initiative No. 7. This proposed bill would abolish any and all animal experimentation in this state. All physiological experiments on any living animal would be prohibited—even feeding or breeding experiments. To defeat this measure will require the united efforts of all physicians, public health workers and public spirited citizens, who realize the serious situation and will take the necessary trouble to meet and combat the unscrupulous propaganda which is spread by the Anti-vivisectionists.*

Let us review in brief some of the benefits which have come to medicine through carefully performed experiments done upon animals with particular reference to public health activities. We recall that all the great progress of modern surgery is based on the work of Pasteur and Lister. It is worth noting that some of Lister's work with animals was done in France because of the annoyance caused him by the pernicious activities of English antivivisectionists who valued the lives of animals before those of human beings. Modern medicine came into its own when the etiological agents of various diseases were discovered. The very first step in the study of disease is the transfer of the infection to animals. Given the experimental infection of animals, the door is wide open for a careful study of the cause, prevention and cure of this disease. Syphilis is perhaps as good an

*The Initiative was defeated by a two to one vote.

example as any. Its conquest dates from the time the infection was tranferred to monkeys and later to rabbits.

Physiology was one of the first of the medical sciences to develop. Animal experimentation is its main resource for teaching and investigation. Perhaps the first thing to be investigated was the circulation of the blood, which up to this time had never been understood. This study of the dynamics of the body is progressing with great rapidity and recently is giving us much information which concerns the ductless glands of the body.

It needs no argument to show that the great progress in bacteriology and pathology is due to the use of animals. Such progress would be absolutely inconceivable under other conditions. The newer work in physiological chemistry is going ahead very fast by means of a chemical study of the various fluids and tissues of the body (normal and abnormal). The study of metabolism, or the exchange going on constantly in the body, a contrast of intake and outgo, is being rapidly advanced by animal experiments.

Public health activities concern us particularly at this time. How are these dependent upon animal experimentation? This may perhaps be best elucidated by means of examples which are familiar to all physicians.

Rabies or hydrophobia has been prevalent to an alarming degree in the great valleys of this state, as well as in the mountains of the northern counties where coyotes were infected. When a person is bitten by an animal suspected of being rabid it is of the greatest importance to make a certain diagnosis as soon as possible. An accurate and conclusive diagnosis can only be made by means of inoculating material from the suspected animal into a normal animal. Treatment can then be given to the persons bitten if the diagnosis is positive.

Tuberculosis of man or animal is of much concern to the public health worker. It is to be recalled that the positive diagnosis of tuberculosis infection in the human being can only be confirmed in doubtful cases by means of animal inoculation. Testing of suspected cattle for tuberculosis can be done only by means of an experimental inoculation with tuberculin. The testing of suspected milk likewise requires the use of animals.

Food poisoning concerns both man and animal in this and other states. Much of the forage poisoning in animals as well as the food poisoning in human beings is due to a poison formed by the *Bacillus botulinus*. Botulinus poisoning is of much commercial importance, as it touches the great canning industries of this state. To ascertain all the facts concerning this condition with the view of complete prevention of food poisoning is the object of a group of investigators who are working with the aid of a liberal grant from the National Canners' Association. This large piece of work concerns all the people of this state, yet few of them know about its existence even. This work calls for the use of large numbers of animals. In fact, a suspected sample of food is first tested by means of inoculation into a guinea pig.

Mining and the projection of tunnels (water power) are of considerable economic importance to the state. Hookworm is prevalent in many mines, and its control demands a knowledge of the facts demonstrated by animal experiments. It has been shown that hookworm infections are due to contact between the skin and the infected material (contaminated soil or feces). The little parasites work their way through the skin and finally come to the intestinal tract. These facts indicate the necessity for proper disposal of human excreta in mines and the treatment of the infected human carriers. Mine

gases also are dangerous to the workers. A simple test for these gases is the exposure of a canary or white mouse in the suspected areas. These little animals are much more susceptible to these odorless but poisonous gases, and give warning before the danger point for humans is reached.

Bubonic plague has been introduced into California just as more recently it has been brought to Texas. It is still present in the ground squirrels of the San Francisco Bay region, and an epidemic may develop whenever conditions are favorable, as was the case last winter. The control of any epidemic of this dread disease requires the use of animals; and all the important facts relating to its rat-flea carriers were discovered by animal experimentation. A certain diagnosis of a suspected human case requires the use of animals.

Diphtheria and syphilis are contagious diseases present in all communities. These diseases can be controlled by curative sera and drugs. But the essential diagnosis requires the use of animals. It is too easily forgotten that the common Wassermann diagnostic test for syphilis requires the use of animals. The standardization of diphtheria antitoxin is under United States Government control and can only be done by the use of animals. The standardization of salvarsan, or "606," the curative drug for syphilis requires the use of animals and is under government supervision. All the preliminary study of these two diseases which finally leads up to their control by means of specific therapeutic agents was carried on by means of animal experimentation.

The word "sanitation" has become popularized, and for that reason is used by people who have no knowledge of its meaning. A person may praise "sanitation" and in the same breath condemn "vivisection." It is obvious that sanitation includes the application to practical problems of the knowledge gained in the study of bacteriology by means of animal experimentation. To certain people "sanitation" means cleanliness of body and environment and explains all the advances in scientific medicine. But given the most cleanly body and environment in the world, we should still see the prevalence of diphtheria, hydrophobia, tuberculosis, botulism poisoning, etc. Malaria and typhoid carriers would work their fatal way in the most cleanly communities. It is only by a clear understanding of the disease virus and its transmission that the disease can be prevented.

These facts give sufficient emphasis to the value of animal experimentation (vivisection). The progress in medicine in the past has depended upon the work done upon animals, and future progress will be equally dependent. We must not permit medical progress, medical teaching and practice in this state to be handicapped by any such legislation as that proposed in the Anti-vivisection Initiative No. 7. It is a duty of every public health student and medical practitioner to work unceasingly to defeat any and all similarly pernicious measures.

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Two important Symposiums from the San Francisco meeting are still scheduled for early numbers of the JOURNAL, Health Centers and Health of Students.

WHO SHALL NURSE THE SICK?

JOHN DILL ROBERTSON, M. D.
Commissioner of Health,
Chicago, Ill.

Read before the Public Health Administration Section, American Public Health Association, at San Francisco, Cal., September 15, 1920.

Commissioner Robertson asserts that with two months' schooling intelligent women can become capable nurses. He brings out an important by-product to the work in public health education of the women who study. They prove to be a force in caring for their own families as well as others. The Chicago Training School has graduated four thousand pupils.

The great problem confronting health officers everywhere is the problem of providing adequate nursing service for the community, at a rate within the means of those who must pay for such service.

The rich and the well-to-do can afford to pay the cost of a registered nurse. The very poor are provided for by charitable institutions. The rich and the paupers, however, make up but a small part of the population of the average community. We have left, after excluding these two classes, the great body of workers, both laborers and salaried men. These people are not willing to accept charity, or anything that looks like charity. They are accustomed to pay full value for what they receive and they try to purchase that which is within their means. When it comes to nursing, however, they cannot find any competent nursing service that is within their means; for I need hardly point out that even if a laborer makes a dollar an hour for an eight-hour day—and most of them make less than that—that laborer, with his two hundred or two hundred and fifty dollars a month, cannot afford to pay one hundred and eighty or two hundred dollars a month to a registered nurse. There would be nothing left to pay for rent, fuel, food and clothing. Perhaps there are still places in the United States where one can get a registered nurse for less than this amount but in my city the registered nurse is paid thirty-five or forty dollars a week, and her board amounts to at least ten dollars a week in addition. There may be places where she works for less but I do not see how she can afford to when one considers the length of time she has spent in training before she is eligible for registration.

To solve the problem of providing competent nursing service for that great part of our population which is neither very rich nor yet very poor, we established the Chicago Training School for Home and Public Health Nursing. That school has been in operation now for more than a year. It has graduated 4,231 pupils and will soon graduate another class. The graduates of the institution have been in service for from two to ten months. This means that the school has passed the experimental stage, and what I have to say about it is based not on theory but on actual facts.

For more than twenty years I have been saying that any competent, bright woman could be trained for nursing in a few months. In the past those who opposed this belief have been able to say: "That is merely a matter of theory with you;" but they can no longer say anything of the sort. That capable women can be trained to make competent nurses in two months' time is now a matter of knowledge.

To open any school, three things are

necessary, namely: a place to meet, teachers and pupils. We were fortunate enough to get the use of a building that had housed a medical college, for our meeting place. This assured us of classroom and amphitheatre facilities.

Our faculty we selected from the staff of our Health Department employees, going outside that body only to secure a lecturer on "First Aid." To give these lectures we secured the services of an exceptionally able young surgeon, who is a good speaker. When selecting our teaching staff we had to consider not only knowledge of the subject to be taught but also ability to speak distinctly enough to be heard by all members of a class; ability to interest a class; ability to select the essential parts of the subject from the unessential; in short, personality.

Our Department of Health in Chicago comprises some 1,400 employees. From this number it was possible to select a faculty of unusual excellence. Each subject has been taught by a specialist in that subject. The lectures on "Contagious Disease Nursing" are given by the head of the Contagious Disease Bureau; the lectures on "Tuberculosis" by the medical superintendent of our Municipal Tuberculosis Sanitarium; the lectures on "Infant Care" by an exceptionally successful doctor attached to our Infant Welfare Department; the lectures on "Sanitation" by the head of our Bureau of Sanitation, and so forth.

Once we had the building and the faculty, we still had to get the students before we could open our school. Our school opened at an auspicious time, in that the terrible influenza epidemic of 1918-1919 was still fresh in the minds of the people and we were prophesying a recurrence of the epidemic in the winter of 1919-1920. Even so, we did not expect to enroll more than 60 or 80 students and would have felt content with 40 or 50. Eight hundred women enrolled for the two months' course and finished it. When the second class enrolled we found we had 1,600 who wished to take the work. We could not possibly accommodate such a number but in spite of all we could do we were not able to reduce the class much below 1,400. This was more than we were able to care for properly and we were not satisfied with the work of the second term. The third term we enrolled 800, which was as large a class as we could handle satisfactorily. By the time it graduated the influenza epidemic of 1920 was past. With the fear of this removed, people began to wait until it suited them to take the course. In the beginning everyone had felt a need to get the course before the disease reappeared. Those who failed in that object felt that they could take it when convenient. Consequently, our classes have been smaller since the influenza epidemic: our fourth class with 600 graduates, our fifth with a little less than 500. Our present class is only 300, because women feel they cannot spare the time during the canning season. Last year, with the epidemic threatening, they let neither canning nor heat nor any duty keep them from the classes. We are assured of a larger attendance at our next class and we expect the school to become a permanent one.

The training is meant, of course, for Chicago women but we have never excluded students from outside of the city who wished to take our course. We should have to limit the number in some way, if a great many from other places came in, but so far anyone who seems capable of doing the work is admitted to the class room. We had one woman come from New Mexico to take the course and another from Colorado. Both had relatives in the city and had learned of the work through them.

Each class meets three times a week for two hours at a time. One hour of each period is devoted to lectures and the other hour to nursing demonstrations. We have both afternoon and evening classes, in order to enable the housewives

of the city to select the time of day that is most convenient to them.

Our student body is made up of more than 20 different nationalities; of widows, married women and single women; of college graduates and of women who never finished grammar school. Of those whom we have already graduated, 808 have been high school graduates and 205 college or university graduates.

There is no fee charged for the instruction given during the course but we charge a fee of $5.00 to those who wish to take part in the graduation exercises. This fee covers the cost of their graduation dinner, of their certificate and of their note book. Each student is required to buy her own clinical thermometer. Aside from this there is no expense attendant upon taking the course and there is absolutely no obligation upon the student to use her training at all, unless she wishes to do so. We assume that anyone who will take the time to pursue the course will be sufficiently interested to use her knowledge.

In spite of the fact that we charge no fees other than the $5.00, the school is self-supporting. It costs the Department of Health nothing except the time of those who lecture at it.

The notebook contains all the lectures given to a class. We print them on our Health Department press and give them to the students after they have finished their course, in order that there may never be any misunderstanding as to what they have been taught, and in order that they may have a reference book at hand to refresh their minds upon some point about which they are in doubt.

Of those whom we have graduated, 2,336 have expressed a wish to continue their study of nursing. We have opened up an Extension Class, for which we charge a fee of $5.00 for the course of 12 lectures. We have also opened a Hospital, in which those of our graduates who wish to do so can take a three months' hospital course. Fifty have already taken that course, but the hospital is too large a subject to discuss here.

Many of our graduates do not wish to nurse outside of their own homes, but that makes no difference to a health officer. If a housewife can nurse her own sick, she makes no call upon the nursing supply of the community, and her sick are cared for—the only points in which we are interested.

When we opened our school in 1919, we had a threefold object in view: *First,* to provide for the expected recurrence of influenza; *Second,* to train a body of women who would render nursing service at a wage within the means of the average family; *Third,* to popularize preventive medicine. All three of these objects, as you will agree, are health activities that come well within the scope of a health officer.

Following the influenza epidemic of 1920, we sent out questionnaires to our graduate body, in order to find out to what extent we had been successful in our first object. We received replies from 877 of our graduates. This number reported having cared for 1,836 and having visited 9,608 other cases during the four weeks that the epidemic was at its height. During the preceding epidemic the four great nursing organizations of the city, the Visiting Nurses' Association, the Municipal Tuberculosis Sanitarium, the Health Department Field Nurses and the Infant Welfare Stations, cared for or visited a total of 45,207 cases in eight weeks. By a comparison of these figures you will appreciate how materially the new school contributed to our nursing facilities.

As our second object, to provide a cheaper nursing service, I refer you to the following figures. Of the graduates willing to work outside of their own homes, 25% are willing to work for from $15 to $20 per week, and about 65% are willing to work for from $20 to $25 per week. After we have trained a sufficiently large number, we expect

the wage to settle at about $20 per week.

The third part of our threefold object is one that is difficult to measure. About the only concrete thing that we can quote is the fact that more than 300 of these women have gone to competent physicians for a complete physicial examination since we lectured to them on the importance of annual physical examinations. Every medical man agrees that annual physical examinations effect a huge saving in life and suffering. By such examinations diseases are discovered in their early stage, which is almost always a curable stage. All of these women were taught how to prevent the spread of contagious diseases, and we know from isolated incidents which keep coming to our attention that those women who took our course have been active since their graduation in keeping their families well. They know the dangers of a septic sore throat now, as well as the danger attendant upon a "little cold." Every lesson of our course has been given as much to teach these women how to keep themselves and their families well, as how to get them well once they are ill.

These nurses of ours are capable. The physicians who have had them on cases report favorably of their work. We have more calls for them at the Department of Health than we are able to fill.

In the beginning, friends said to me: "You may be able to teach them to care for babies and invalids and tuberculous patients, and that sort of cases, but you can never train them for surgical nurses." You understand that in the medical world surgery is looked upon as the final test of a nurse. If she can do surgical nursing, it is assumed that she can do anything. I do not care to make the statement that such is a fact. I merely state that it is usually believed to be a fact.

As I said earlier, we have opened a hospital where graduates of our two months' course can take three months of hospital training if they wish to do so. We have already treated about 90 patients at that hospital without a single accident or death. We have had a wide variety of operative cases there. The Superintendent of Nurses, who is a registered nurse from an old training school, does not come into the operating room. These women attend to the duties of a surgical nurse with such instruction as they receive from me and my assistant. They have, of course, been taught the names of the instruments before they are allowed to assist.

Before I was a health officer I was a surgeon. I was attending surgeon at Cook County Hospital for 15 years, operating three days each week. In all, I have performed more than 6000 major abdominal operations, not to mention countless operations of other sorts. I have been assisted by every description of nurse from every sort of training school; consequently, I feel that I have plenty of ground for comparison between these nurses from the two-month course and nurses in general. I have never found better nursing service anywhere than the service of these women.

They are most of them trained housewives. This means that their fingers are skillful and adept. Women who all their lives have been lifting roasts from the pan so as not to splash themselves with hot grease find nothing new in lifting surgical instruments from their place. Women who have threaded needles thousands of times in order to sew on buttons, find nothing new in threading a surgical needle. Women who are accustomed to tasks that call for care and accuracy find nothing new at all in the operating room except the instruments themselves, and these they can soon learn to handle. Any woman who can learn the difference between teaspoons, tablespoons and coffee spoons can learn the difference between the different sorts of forceps.

These women can, therefore, be trained to do surgical nursing. They

have been trained to do it. They can likewise be trained to do any sort of public health nursing. They can be trained to do it in as short a time as any registered nurse, for you gentlemen know as well as I do, that no registered nurse is ready to do public health work until after a period of special training. In Chicago we count on about three months' training before a registered graduate nurse is ready to nurse in our health force.

These women who have attended our school average around forty years of age; more than half of them are married or widowed. Life itself, has taught them how to meet family and community problems. They need no special training from us in that matter. They need only a training in the fundamentals of nursing, and that, we have found, they get readily in eight weeks.

Institutions such as ours are needed in every community. Running such a school is essentially health work, in that the school teaches how to avoid illness while instructing how to care for it. There are, however, comparatively few communities in which such schools will be opened because the Nurses' Union, which is what the Registered Nurses' Association really is, is opposed to this short term. It does not menace them in the least, for, with the medical schools in the country turning out 1200 doctors less than are needed each year, the registered nurse will need to fear no competition from the short term nurse, who is in reality a "housekeeper for the sick."

The shortsighted among the registered nurses, however, do not appreciate this fact, and they are solidly opposed to such schools. In Chicago we have paid absolutely no attention to their protests, and their opposition has injured us not at all. Incidentally, I might remark that we have not injured them. As many young women enroll for the regular hospital courses of two and three years as would enroll if we were not in existence. We draw our students from that great body of women who wish to know enough about nursing to be capable nurses, but do not wish to spend two or three years in learning how. There is plenty of work in the world for both classes of nurses, and the registered nurse has no right to object to schools which will enable people who cannot afford to pay for her services to secure competent nursing care during illness. I have no doubt that health officers who establish such schools in their communities will find the opposition as harmless as we have found it, provided they pay no attention to it.

In conclusion, permit me to say that the Chicago Department of Health will assist to the extent of its resources anyone wishing to start such a school.*

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*Since writing the above the sixth and seventh classes have been enrolled. The seventh class numbered 950 and the eighth 800.

The Health and Sanitation Exposition was conducted under the auspices of this School. The net earnings of the Exposition amounted to $93,000.00.

J. D. R.

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Typhus Problems.—Typhus fever was more prevalent in Europe last summer than in previous years, and this winter may see a great epidemic of the disease, according to Sir David Henderson, Director General of the League of Red Cross Societies. He states that peace in Eastern Europe will mean the return of a host of refugees from Russia to Poland, Esthonia, and probably Roumania. The demobilization of the Polish army will remove the opportunity to quarantine the eastern frontier, and so the areas mentioned are likely to be reinfected. He calls attention to three prime necessities for fighting the epidemic. They are clothes, fuel and transportation. Clothes in order to supply to persons while their one set of garments is being deloused and also to replace those which are destroyed during the process; fuel to heat water for delousing; transportation for coal and for food to give to those infected while they are in quarantine and at the delousing stations for several days. All of these requisites are now lacking.—*J. A. T.*

THE VALUE OF THE PUBLIC HEALTH SURVEY IN THE PUBLIC HEALTH CAMPAIGN

MURRAY P. HORWOOD, M. S.,
Instructor, Department of Biology and Public Health, Massachusetts Institute of Technology,
and
JULES SCHEVITZ, B. S.,
General Secretary, Oklahoma Public Health Association

Read before the Sociological Section, American Public Health Association, at San Francisco, September 13, 1920.

The value of a public health survey depends as much on the community as on the survey itself. Its benefits lie largely in the follow-up. The survey is a powerful agent in stimulating public interest, diffusing knowledge and defining the health status. Like the physical examination of individuals the survey should be a regular function.

ABOUT ten years ago, the public health survey was developed in this country, as a means of promoting public health progress. During this time many surveys have been made, notably those under the auspices of the Russell Sage Foundation, the New York Bureau of Municipal Research, the United States Public Health Service, the various State Health Departments, the Delineator, and others by independent investigators such as Professor C.-E. A. Winslow and Mayo Tolman. The nature of the surveys varied considerably. Some were very complete and based on original investigations and findings. Others were more superficial and lacked the necessary information on which to base recommendations. A public health survey may be defined as an investigation conducted by a trained corps of workers to determine the exact status of those conditions which may affect the health of the community, directly or indirectly. It is only such surveys that the authors have in mind in attempting to determine their value.

During the past five years the authors have had occasion to conduct public health surveys in Taunton and Quincy, Mass., Glen Ridge and Union Hill, N. J., and in the following cities in Oklahoma: Oklahoma City, Tulsa, Muskogee, Bartlesville, Shawnee, Enid, Ardmore and McAlester. It is in looking back over this work that an attempt is made to evaluate the worth of such endeavors.

That the value of a public health survey depends on the degree to which the community is organized for conducting and following up the survey is readily recognized. It also depends on whether the survey is conducted under official auspices, requiring a complete report and follow up work, or merely for the information of the investigator. The surveys of the Rockefeller Foundation, for example, have been made primarily for the information of that body. In the public health surveys of Taunton and Quincy, Mass., conducted by one of the authors, the work was also done entirely for private information, so that few people knew of it except those directly reached by the investigator in his search for information. In these surveys the investigator alone benefited by the study.

The Oklahoma Public Health Surveys, on the other hand, were thoroughly organized and conducted under popular

auspices, and were planned with the idea of reporting and following up the findings of the surveys. A central committee, composed of the leading citizens and officials of each city, was appointed to take charge of the local survey. Preceding and during the field work, widespread publicity was given to the purpose and nature of the survey, and an attempt was made to interest all the citizens. By means of newspaper stories and editorials, addresses to representative organizations, observance of a Health Sunday and other educational and publicity methods, interest in the public health and particularly in the survey, was aroused to an unusual degree.

At the completion of the survey, a preliminary report was immediately made to the central committee. This report was read to the assembled committee, and a copy of it left in its care. The report outlined briefly the findings of the survey, and enumerated the most important recommendations. Later, a full and complete report, including tables, charts and photographs, was made to the central committee.

The central committee was composed of representatives from the city administration, the health department, the board of education, the chamber of commerce, the various civic organizations, the county medical society, the charities, the churches and the voluntary health organizations. During the survey the authors appeared before the central committee and other representative groups in the community and acquainted them with the nature and progress of the survey, and to some degree also, with some of its findings. Much was done during the survey to preach healthy living, both in the public addresses and through the articles in the daily press.

Not only can the public health survey be a powerful agent in stimulating an enlightened public interest in matters pertaining to the public health, and in disseminating knowledge about healthy living at a time when the people are particularly receptive for such information, but it provides the most effective means for ascertaining the exact status of the conditions affecting health in the community. Health officers have been preaching the necessity of periodic medical examinations for individuals. It is equally necessary for communities to have periodic health examinations, and while the period of examination need not be as frequent, the examination must be regular and thorough. Doubtless the time is coming when the public health survey will be incorporated as one of the regular periodic duties of a health department, just as stock taking is a regular function of any intelligently operated business enterprise.

In order to determine the most efficient method for the expenditure of the public funds at his disposal, as well as to adopt an intelligent and well-balanced program, the health officer must be intimately acquainted not only with the amount of disease and death, but also with the status of the conditions affecting the public health. This information can only be obtained through the agency of the public health survey.

The large number of public health surveys which have been made during the past five years alone, is but an indication of their importance and value in promoting the public health campaign. Health workers will necessarily have to use the survey more and more in the future, not only to get at the facts, but to aid them in moving the public and the officials of the city, the state, and the nation to increased activity for promoting the public health. The Harvard-Technology School of Public Health requires every student to submit a public health survey before obtaining the Certificate of Public Health. It does so because it recognizes the great value of the public health survey as a means of testing out practically the knowledge of the students; and also because it realizes the increasing importance of the public health survey as a weapon of the health

officer in ascertaining the facts regarding the health conditions in his community; and finally, because the survey has great value in bringing about sanitary reforms.

What, however, are the benefits to be derived from the survey after it is completed? First of all it must be stated that the results of a public health survey are often intangible and very difficult to measure. In many instances the immediate results may be practically *nil*, yet the survey stands as a program which is likely to be gradually accomplished in the future. An analysis of the after effects of a large number of public health surveys conducted in this country indicates clearly that many of the improvements in health administration following the survey, are due to the stimulation of health and other governmental authorities during the survey.

In general, the post-survey results depend on the efficiency and persistence of those in charge of carrying out the recommendations. Where no special effort is made toward this end, few immediate benefits can be expected. The experience of the authors shows that with proper follow-up work, many recommendations made in the survey report can be adopted soon after the survey, but that the degree to which the recommendations are introduced, varies directly with the intensity of the organization for this purpose. It is not enough to collect the information required for a complete and comprehensive survey report, but wherever possible post-survey activities should be assured in order to obtain tangible and lasting results.

In Glen Ridge, for example, a full-time, well-trained health officer was appointed, following the recommendation of the survey report. In addition the director of the survey was asked to remain after the survey was over, in order to remedy the defects that were brought to light. By several visits to the dairies, many important sanitary changes were introduced. By repeated inspections and by education, fly-breeding places were practically abolished. In one case, it required a special experiment to prove that flies come from maggots found in manure, before the fly breeding manure heap was removed.

In the Oklahoma City public health survey, the chamber of commerce assumed the responsibility of carrying out the recommendations in the survey report. A public health committee of 35 prominent business men was appointed to consider the findings of the survey with the city health authorities. The large committee of 35 was divided into sub-committees on water, milk, sewage and garbage disposal, health department organization, and tuberculosis. These committees have been meeting regularly for a year and a half, studying the particular subjects assigned to them and reporting back to the general committee. In one or two instances the sub-committee pursued its study even more intensively than was attempted in the original survey.

The following are some of the more direct results of the health survey in Oklahoma City:

The Health Department was reorganized according to a slight modification of the plan recommended in the survey report. The health officer in office during the survey, was replaced by another, more efficient and better trained. The incompetent milk inspector was discharged and the work placed in charge of the city chemist, who is thoroughly trained along these lines. Inspections and analyses of the milk supply have since been frequently made. Much publicity has been given to the laboratory findings, and reports indicate a steady improvement in the quality of the milk supply. A full-time, trained superintendent has been placed in charge of the water purification plant, according to the recommendation of the survey, and has replaced one who was untrained. A great improvement in the keeping of the vital statistics has been brought about,

and the City Health Department in conjunction with other health agencies is now publishing a monthly health bulletin. Appropriations for preventive health work have increased greatly each year and the Health Officer has been ably assisted in his requests by the public health committee of the Chamber of Commerce. Other improvements which might be mentioned are the suggested plan for the centralization and coördination of public health nursing activities, the appointment of a full-time school medical inspector, and the much more general interest on the part of the public in city health activities.

The following are some of the results obtained from other public health surveys.

In 1913 Franz Schneider, Jr., of the Russell Sage Foundation in New York, conducted a public health survey of Newburgh, N. Y. Newburgh had suffered from an exceedingly high typhoid fever death rate for years. As a result of the investigation, it was recommended that the water be chlorinated. At first the water board objected, but after Mr. Schneider's recommendations were reenforced by water experts whom the city water board called in, the water supply was treated with hypochlorite. The Clinic in the Boston Transcript* for June 28, 1916, says: "The survey report (of Newburgh) was presented May 7, 1913. In June, the water board advised consumers to boil the water, and in October of the same year, the permanent hypochlorite plant was authorized."

The following table was quoted, showing that the typhoid death rate fell immediately after the water was disinfected. (See top of next column.)

Shelby M. Harrison, Director of Surveys and Exhibits for the Russell Sage Foundation, quotes the following in his pamphlet on "Community Action Through Surveys," concerning the results obtained from the Springfield, Ill., and Topeka, Kan., surveys:

TYPHOID DEATH RATES PER 100,000 POPULATION FOR NEWBURGH, N. Y.

Year	Rate
1908	40.3
1909	50.8
1910	46.6
1911	42.6
1912	42.2
1913	27.8
1914	24.1
1915	20.5

"The events which pretty clearly had their beginning in survey recommendations,—or at any rate, the advances made in the community since the survey,—which had been specifically recommended by the survey, no matter what other agencies had also helped," are as follows:

FOR SPRINGFIELD, ILL.

1. Infant hygiene work started.
2. Announcement made of a movement on foot for new contagious disease hospital facilities.
3. The Tuberculosis Association reorganized itself and its work, placing more emphasis upon educational features.
4. Free dispensary established at St. John's Hospital.
5. Publication of the milk inspections, scorings of milk dealers started, and an improvement in the milk situation is claimed.
6. The lighting, ventilation and general sanitation of all the schools given attention and greatly improved. Fire exit locks have been placed on all outside doors, and fire escapes on the high school.
7. The new school buildings in course of erection, meet much higher standards with respect to lighting, heating, ventilation and sanitation.

FOR TOPEKA, KANSAS.

1. Full-time health officer, a specialist in public health and sanitation, secured.

*The authors are indebted for this information and that regarding Springfield and Topeka, which follows, to Mr. Shelby M. Harrison of the Russell Sage Foundation. Grateful acknowledgment is hereby made.

2. New and more able milk inspector secured, and improvement in the milk situation reported.

3. Health department laboratory, with laboratory worker established.

4. East-side sewer system in the largest unsewered settled area in Kansas, provided for and built. Cost, $150,000.

5. Development of infant hygiene work by the Public Health Nursing Association.

6. First printed annual report of the Health Department issued.

Another important example of beneficial results obtained through the agency of the public health survey, is the case of the Framingham Community Health and Tuberculosis Demonstration. Although the Demonstration was primarily interested in the study of tuberculosis, it attacked the problem from the standpoint that general health conditions affect the prevalence of tuberculosis. One of the things it did was to conduct a public health survey of Framingham.

In a special report to Surgeon General Rupert Blue of the U. S. Public Health Service, made by the Committee on Appraisal, and published by the Framingham Community Health Station in October, 1919, the committee which consisted of Dr. Allan J. McLaughlin, Chairman, Professor C.-E. A. Winslow, Secretary, and many other prominent public health workers, reported in part as follows:

"Even more important from the practical standpoint has been the notable development of public health work in Framingham along a wide variety of lines. The local health department has grown to be a strong and effective one, and the system of medical inspection of school children, organized under the Department of Education, represents one of the best examples of such service to be found in the United States.

"It seems clear that if the Framingham Demonstration should cease on January 1, 1920, the local community will have benefited materially, and many important contributions will have been made to the practical control of tuberculosis."

It may be concluded that the public health survey has a distinct place in the public health campaign, and its value lies along the following lines:

1. As a force in stimulating active public interest in the conditions affecting health in a community.

2. As a strong agent to promote public health education.

3. As the best and only means for determining the exact status of health conditions in a community.

4. As a powerful weapon for introducing health improvements.

□

English Health Council.—It is an encouraging "sign of the times" to note the formation of a "Health Council" for Maidstone, England, and the surrounding district. This council consists of fifty members, in part drawn from the medical profession and in part drawn from the laity. The functions of this body will be to promote coöperation between the various activities concerned with the health of the public, to initiate plans and to make recommendations, to receive for consideration suggestions and to place itself in communication with other health councils formed in the county. For practical procedure the council is divided into eight divisions, one of which is a propaganda division. In an apparent attempt to include all interested agencies it might be argued that this council is too large for effective work, but the development of its activities may be watched with interest by those in this country who are concerned with the formation of health coördination committees and similar bodies in connection with health centers or other local coördinating and education movements.—*Edit., Med. Officer,* Sept. 25, 1920. *H. N. C.*

SYMPOSIUM ON SMALLPOX

I. INTRODUCTION

The JOURNAL presents this month the symposium on smallpox together with the kindred paper on animal experimentation read at the San Francisco meeting of the American Public Health Association. These papers had a special significance at the West Coast in that the questions of vaccination or animal experimentation were at that time before the people of two states for popular vote. The result of the vote in defeating the opponents of both scientific procedures is well known. The papers have still their educational value, more particularly at the present moment when the question of an invasion of the country by smallpox is discussed by the highest authorities. The papers here presented are those of Dr. Force, Dr. Hastings, President Wilbur, Mr. Rowell, with Dr. Heiser's additional discussion, together with Professor Whipple's paper on "The Value of Animal Experimentation to Mankind." To these items Surgeon General Hugh S. Cumming, U. S. P. H. S., adds a brief editorial and there is given Dr. Roper's account of a recent outbreak at Portsmouth, Va., with a striking chart which shows the distribution of cases from three of the original foci.

In connection with the smallpox papers the JOURNAL presents facsimiles of both pages of the very rare broadside by Increase Mather entitled "Several Reasons." This is possible through the courtesy of its owner, Mr. William Gwinn Mather of Cleveland, Ohio, a leading collector of Matheriana in the country. This broadside, of which Mr. Mather possesses the only known copy, is of highest interest, outlining as it does the introduction of the practice of inoculation into New England. It was brought into notice by Mr. George H. Sargent, who, in the *Boston Transcript*, chronicled its coming sale among the Matheriana of Francis W. Fabyan. "Readers of Colonial History," writes Mr. Sargent, "are familiar with the controversy which raged in Boston regarding inoculation for the smallpox. Probably no single influence was greater in bringing into favor this innovation in medical practice in the Colonies than Increase Mather. He issued a broadside in favor of it which was widely distributed. But broadsides are easily destroyed and soon forgotten after serving their purpose. So, more than two hundred years have passed since a copy of the broadside by Increase Mather has been seen bearing the title, 'Several Reasons Proving that Inoculation of Transplanting the Small Pox is a lawful practice and that it has been Blessed by God for the Saving of many a Life.' It is a small folio of two pages, and is apparently unique, no copy being in the great collections of Matheriana."

At the sale the broadside was purchased by Mr. Mather for his own library, where it now rests. It is of sufficient interest to be reproduced in its text, as well as in *facsimile*, since the old-fashioned typography reduced to the size of the JOURNAL page may easily be illegible to many. The text is given in No. 133 of this symposium.

The Mather broadside is of 1721, and antedates Jenner's practical application of the principle of vaccination by 75 years. The inoculating material was therefore the smallpox virus itself, and the method had been coming west for no one knows how many years or centuries.

The Chinese used smallpox vaccination at an early date. It was known in Constantinople certainly as early as the seventeenth century, and from that city it seems to have spread over Western Europe, and early in the eighteenth century was in use in England. Mather asserted that the story of inoculation with smallpox was told to him by Africans who had come to this country.

SYMPOSIUM ON SMALLPOX

II. EPIDEMIOLOGICAL STUDY OF SMALLPOX IN CALIFORNIA

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Read before Laboratory Section, American Public Health Association, at San Francisco, Cal., September 16, 1920.

IN 1911 the California Legislature passed an act repealing an existing statute which had provided for the compulsory vaccination of school children. The new law, which was entitled "An act to encourage and provide for a general vaccination for all public and private schools of California," contained the following provisions:

1. Any person attending or employed by any educational institution in California shall file (a) a certificate, signed by a physician, of successful vaccination within the seven years preceding the date of filing, or (b), a certificate, signed by the local health officer, that evidence has been presented of a successful vaccination within seven years, or (c) a certificate, signed by a physician, that vaccination would endanger the life and health of the person, or (d) a certificate, signed by a physician, that the person "had used due diligence and can not be successfully vaccinated," or (e) a statement, signed by himself, if an adult, or by a parent or guardian, if a minor, stating that the person, parent, or guardian "is conscientiously opposed to the practice of vaccination." The "endanger health" and "due diligence" certificates and the "conscientiously opposed" statement must be renewed annually.

2. The form of vaccination certificate is prescribed as well as the form for statement of conscientious opposition to the practice of vaccination. The latter form must be furnished by the local school authority. Persons entering the schools must file one of the five certificates within five days or be excluded from attendance until such certificate is filed.

3. The certificates received by the school authorities are turned over to the local health officer, who makes a list of the vaccinated and unvaccinated persons returning the vaccination certificates to their owners and retaining the certificates and statements subject to annual renewal.

4. If smallpox appears in any school district, the State Board of Health is required to investigate, and, if smallpox does exist in the opinion of the State Board of Health, all persons who have not been vaccinated within seven years shall be excluded until vaccinated, or until smallpox shall cease to exist in the district. The state board also has power to subdivide the community and allow unvaccinated children to attend school in subdivisions in which no smallpox exists. The actual exclusion of persons is done by the school authorities on receipt of a certificate, signed by the local health officer, as to the existence of smallpox in a school district, accompanied by a list of the unvaccinated persons to be excluded.

5. Any private school may at any time exclude all unvaccinated persons therefrom.

It is the purpose of this paper to show wherein this act is faulty from both the immunological and legal standpoints, and to present a study of the incidence and distribution of smallpox in California, with especial reference to the ages affected by this enactment.

The object of vaccination is to pre-

vent or modify smallpox in the individual. Immunity to smallpox has been shown to be of longer duration than immunity to vaccinia. A community of persons immune to vaccinia, therefore would be immune to smallpox. There is only one way to determine the state of a person's immunity to vaccinia, and that is to vaccinate with fresh cold virus and observe the site for one of three reactions: primary vaccinia, secondary vaccinia (vaccinoid), or the immune reaction. Failure to secure one of these three reactions is due to faulty technique or inert virus, and the vaccination should be repeated until one of the reactions is observed.

The possession of a well-defined vaccination scar is not evidence of immunity to vaccinia, nor is its absence evidence of susceptibility. Kitasato found that 14% of persons successfully vaccinated may be successfully revaccinated after one year. On the other hand, persons giving no history of smallpox, and showing no vaccination scar sometimes show the immune reaction on vaccination.

It is manifestly impracticable to insist on the vaccination of every person entering school, and we therefore are justified in accepting the vaccination scar as reasonable evidence of immunity to smallpox without reference to any mystic number seven. At the university we vaccinate all unscarred entrants and excuse all those with scars. We began this practice in 1906, and since that year we have had no smallpox in the student body.

Instead, therefore, of providing for five different certificates the vaccination act should provide for the listing of school children showing no vaccination scar. A certificate should be provided for those persons showing no scar but giving the reaction of immunity on vaccination, and this group should be removed from the list of unscarred persons.

The presence of a vaccination scar should render unnecessary the certificates (a) and (b). If a child's health is endangered by vaccination, he is too ill to go to school, so we do not need certificate (c). The "due diligence" certificate (d) would automatically disappear as physicians learn that there is no such thing as a failure if cold fresh virus is used. The writer vaccinated 300 entrants, with no scars but histories of one or more previous vaccinations, securing 297 primary vaccinias.

After disposing of the four preceding groups, we have still to consider the conscientious opponents of vaccination. At the university we ignore them, and this could be the attitude of any other school in the state, for the question is purely a legal one.

Shortly after the passage of the vaccination act, a young man offered conscientious opposition when informed that vaccination was a university entrance requirement. He was refused admittance on the ground that the university was a private school, and could exclude any unvaccinated person. Mandamus proceedings were instituted and the Superior Court held that, while the university was not a private school, the vaccination act was unconstitutional, as it discriminated between persons on a basis of belief, imposing certain requirements on one group and exempting another from such requirements. The case was carried to the Appellate Court (Williams vs. Wheeler et al. Decision Civil 1226. First Appellate District California Appellate Decisions, vol. 18, page 51) which ruled that, while under its police power the legislature could pass an act to promote vaccination, which was a well-established health procedure, it could not in the same act insert a clause, not founded on a consideration of health, which would tend to prevent the operation of the act. The Court, therefore, decided the case in favor of the university.

Unfortunately the illegality of this section of the act is not generally known

throughout the state and school authorities have followed the line of least resistance. As one school principal expressed it: "A parent brings a child to enter him in school, and I tell her that the child must be vaccinated. She asks if there is any way out of it, and I give her one of the 'conscientiously opposed' forms to sign." The act, you will remember, provides that these forms shall be *furnished* by the school authorities, and this is easily construed to mean *distributed* to children to be taken home for signatures. With the trouble and expense of a vaccination on one hand, and a simple signature on the other, is it any wonder that our State Board of Health has recently estimated that 80% of our school children are unvaccinated?

The opponents of vaccination claim that this figure represents popular sentiment toward the practice, but it is remarkable how quickly the opposition disappears when unvaccinated children are excluded from school. In Berkeley, in 1913, out of 2700 unvaccinated children excluded, only 200 had parents with consciences sufficiently strong to keep them at home unvaccinated until the end of the epidemic. A case of smallpox appeared in a school district in Berkeley during the early part of 1920. Approximately 500 children attended the school, of whom 300 had opposition statements on file. Only one case of smallpox occurred, and the unvaccinated children were allowed to return in two weeks, but during that time half of the excluded group had been vaccinated. This does not look like a very determined opposition, but rather an indifference fostered by careful provision in the law that the line of least resistance shall be away from vaccination. Now the opponents of vaccination propose to remove even the discomfort of having unvaccinated children at home during a smallpox epidemic, for an initiative measure is to be voted on at the next election which is designed to prevent making vaccination a condition of entrance into any school in California.* Should this measure carry there will be another epoch more interesting than the present one in the smallpox history of California. Should it fail we shall still have the defects of the present act to reckon with.

The most simple procedure then during a smallpox epidemic, would be to exclude all unscarred persons not proven immune, until the evidence of immunity is forthcoming in the shape of a vaccinia, a vaccinoid, or a certificate of the observation of the immune reaction. No other certificate should be accepted.

The law should be very clear regarding the power of the school authorities to transfer a child from a subdivision where smallpox exists, to one that is free from smallpox. At present this question is open.

The presence of 80% of unvaccinated school childen in the population of California is responsible for an interesting tendency in the morbidity statistics of smallpox.†

For the purpose of this study, the smallpox cases reported to the State Board of Health by ages, during the years 1916, 1918 and 1919 were distributed as shown in the accompanying table (Table I). The rate per thousand of the population was then computed for each age, using the following population estimate based on the 1910 census:

Year	Population	Factor
1916	2,938,654	.00034
1918	3,119,412	.00032
1919	3,209,791	.00031

A barograph was then constructed for each of these years, using ages and case

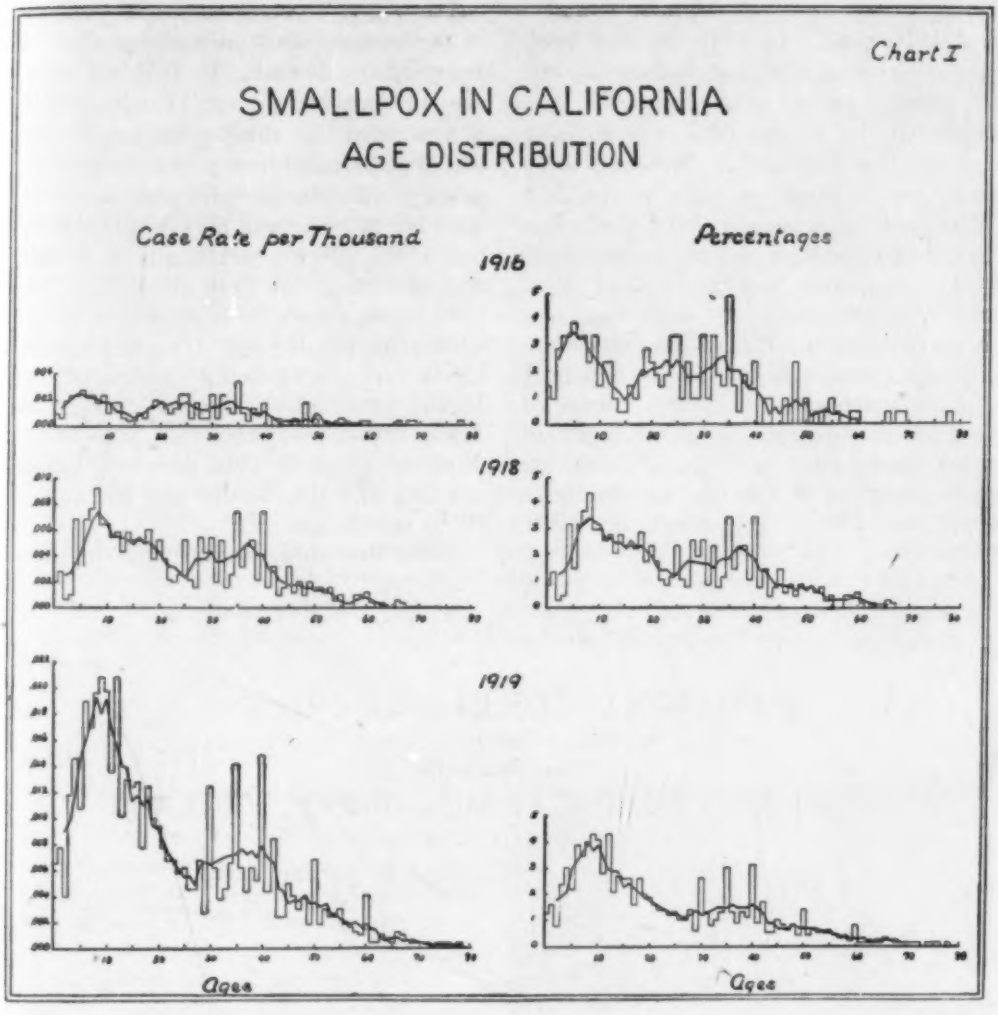
*This measure was defeated by a majority of 108,924 votes.

†These statistics refer only to cases reported by ages. The total number of cases reported was as follows: 1915, 91; 1916, 248; 1917, 329; 1918, 1,100; 1919, 2,053; and 1920, 4,486. Vaccination histories secured from 4,226 of the 1920 cases gave: Never vaccinated, 92 per cent; vaccinated more than five years ago, 7 per cent; vaccinated during last five years, 1 per cent.

TABLE I.

DISTRIBUTION OF SMALLPOX CASES BY AGES

Age	1916	1918	1919	Age	1916	1918	1919
1	3	6	21	41	..	5	14
1	2	9	25	42	2	10	27
2	6	2	13	43	2	3	8
3	7	3	38	44	..	5	8
4	7	21	47	45	..	10	16
5	8	10	35	46	2	4	13
6	7	21	61	47	..	6	10
7	7	24	55	48	5	3	12
8	5	29	63	49	..	6	6
9	7	20	67	50	2	5	22
10	3	20	64	51	..	5	6
11	5	17	44	52	1	4	10
12	5	18	67	53	..	5	8
13	2	14	33	54	1	2	8
14	1	18	42	55	2	3	10
15	1	16	40	56	1	..	6
16	3	16	41	57	..	..	5
17	2	15	25	58	..	3	4
18	4	19	40	59	1	3	3
19	6	12	32	60	1	4	13
20	5	16	30	61	..	1	1
21	4	12	25	62	..	..	1
22	3	7	22	63	..	1	3
23	4	6	22	64	..	..	2
24	7	8	19	65	..	..	1
25	7	16	20	66	1	2	4
26	2	7	15	67	..	1	3
27	5	5	15	68	1	..	2
28	2	17	22	69	1	..	1
29	2	13	9	70	..	..	1
30	7	17	40	71	..	..	1
31	2	6	20	72	..	..	1
32	7	16	12	73	..	..	..
33	4	5	15	74	..	..	1
34	3	8	21	75	..	..	1
35	10	23	46	76	..	..	1
36	3	10	20	77	..	..	..
37	1	15	14	78	1	..	1
38	4	16	20				
39	3	7	17				
40	5	23	48		205	654	1,560



rates for coördinates. In order to eliminate the error of round numbers, a moving five year average was superimposed on the barograph. The total cases for each of the three years was taken as 100%, and the distribution by ages computed as percentages. Barographs were constructed and moving five year averages superimposed as in the distribution by case rates. Finally, cumulative percentages were computed for each year, and the cumulative percentages plotted and superimposed. The results are shown in the accompanying charts (Charts I and II.)

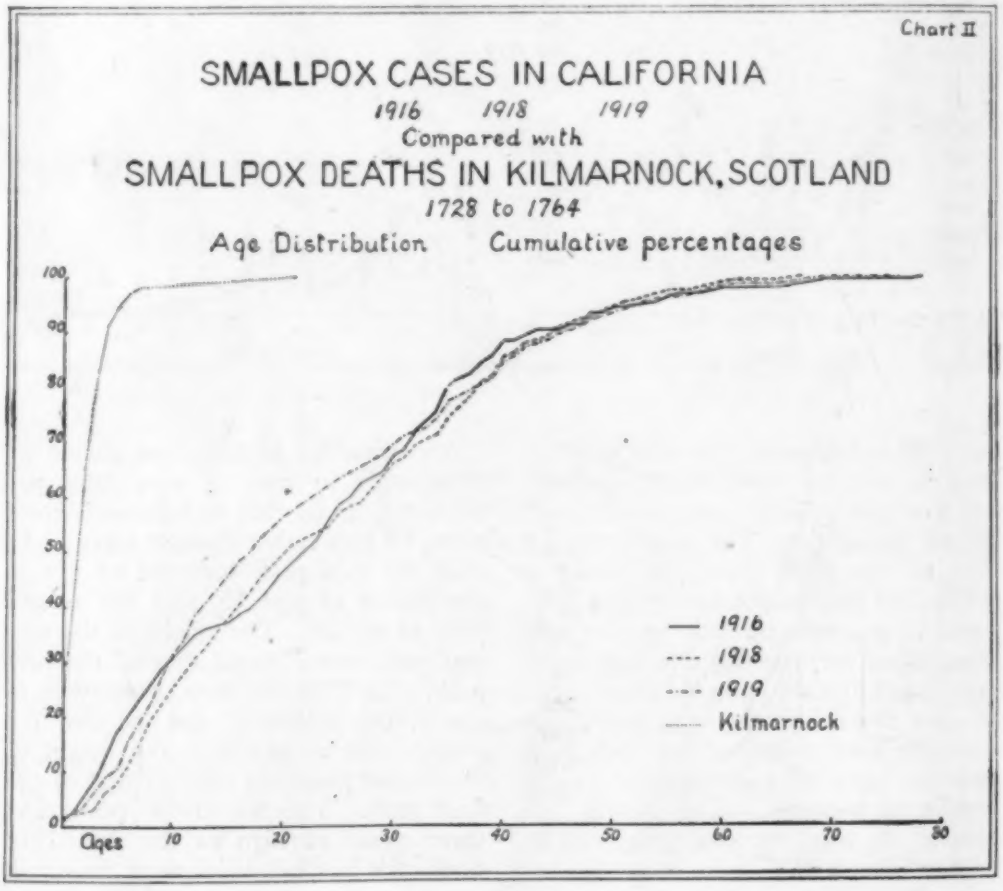
A comparison of the three curves of distribution by ages of case rates per thousand, shows that each curve is composed of two rather distinct waves. In 1916 the first peak occurred at age 5, the hollow at age 15, and the second peak at age 33. The height of the second peak was 75% of that of the first peak. In 1918 the first peak was at age 8, the hollow at age 25, and the second peak at age 38. The height of the second peak was 60% of that of the first peak. The first 1918 peak was three times as high as the first 1916 peak, the second 1918 peak was two

and one-half times as high as the second 1916 peak. In 1919 the first peak was also at age 8, the hollow at age 27, and the second peak at age 40. The height of the second peak was 40% of that of the first peak. The first 1919 peak was 8 times as high as the first 1916 peak, the second 1919 peak was four times as high as the second 1916 peak. In other words, between 1916 and 1919, the maximum adult case rate increased four-fold, and the maximum children's case rate increased eight-fold.

A comparison of the three curves of distribution by ages of percentages of cases shows that in 1916, 37% of the cases occurred in the first or children's wave; in 1918, 57%, and in 1919, 65%.

The superimposed cumulative curves of percentages show at a glance the tendency of the disease. In 1916 the curve rises uniformly until age 11, where there is a decided lag, due to the large number of school children protected by compulsory vaccination previous to 1911. This lag is overcome by age 40, and the rest of the curve is practically coincident with the curves of 1918 and 1919. The 1919 curve shows no tendency to flatten until after passing age 17, and then the lag is very slight, being greatest at age 35 and practically overcome by age 40. These curves also show that 50% of the smallpox cases in 1916 occurred before age 22; in 1918, before age 20, and in 1919, before age 17.

From this study we see that in three



years in the presence of a steadily increasing population of unvaccinated school children, smallpox in California, though mild in type, has shown a tendency to assume the well known characteristics of pre-Jennerian days, and become primarily a children's disease.

Unfortunately we have no pre-Jennerian morbidity analysis by ages for comparison with the California figures, but mortality figures are not lacking. McVail in his "Prevention of Infectious Diseases" has analyzed a register kept by the parish schoolmasters of Kilmarnock, Scotland, between 1728 and 1764. This village of 4,200 population was visited during this time by nine epidemics of smallpox, causing 16% of deaths from all causes. The epidemics occurred on an average of once in four years, the mortality being distributed as follows: Under age 4, 89%, ages 4 to 8, 10%, over age 8, 1%.

The mortality figures of McVail have been distributed by ages and plotted as cumulative percentages on the same chart with the cumulative percentage curves of California morbidity (Chart II). This Kilmarnock curve is the age distribution limit toward which the California morbidity curves are rapidly approaching.

The opponents of vaccination have succeeded in developing a school population, 80% unprotected against smallpox. The result is evident from the morbidity statistics. Let us devote ourselves as health officials to furthering the use of cold, fresh smallpox vaccine, in order that those persons with intelligence enough to request protection shall not be disappointed in the attempt to secure it.

□

She Certainly Is Welcome

The January JOURNAL, page 67, left the community nurse knocking at the door of a humble house, and the question was asked, "Will she be welcome?" Here is the answer, and it is the answer that the experience of any public health nurse repeats over and over.

The door opens, the woman of the house appears, not American-born as one may see by her features, her stout coat and her closely wrapped head. But the smile that is in all languages is on her face and her extended hand tells the rest. It is very true that foreign races are suspicious, but it is further true that they are not slow to recognize sympathy and helpfulness. The public health nurse has proved herself to be the friend of the household in moderate circumstances and of the neighborhood, and much of the extension of her work is through the information picked up in the living rooms of those she is helping.

The original comes to the JOURNAL through the courtesy of Florence Swift Wright, R. N.

SYMPOSIUM ON SMALLPOX
III. VACCINATION AND THE STUDENT

RAY LYMAN WILBUR, LL.D.,
President of Stanford University, California

Read before General Sessions, American Public Health Association, at San Francisco, Cal., September 17, 1920.

I WISH to emphasize some of the lessons brought out in previous papers at this session, since they apply to this state and elsewhere, and to point out some of our responsibilities in connection with the public schools.

Now, there are a few things that I think we can consider as settled among reasonable people, although as was said, there are always those who will not believe certain things about medicine, science, and above all about vaccination.

In the first place, we know that vaccination protects the individual against smallpox. That protection lasts a variable period. We know that the people who have the greatest safety from smallpox infection are smallpox nurses and doctors who are repeatedly vaccinated, so that with that question settled we can go on to the next.

We know that any nation that will systematically vaccinate infants and repeat vaccination, can absolutely abolish smallpox from its midst, just as Germany did.

What is the method that can be used to control smallpox in such communities as ours? Shall it be by vaccination of a compulsory character? Shall it be by control of individual cases when smallpox occurs? Or shall we simply let the whole thing drift and pay no attention to it?

This is of particular consequence to us in California because we are near one of the great endemic foci for smallpox, Mexico. Smallpox there is often of a fatal character; we have no protection such as England enjoys by reason of her isolation. All this part of the world will be exposed more or less to contact with smallpox patients.

California has a vaccination law that has a compulsory feature only in the presence of smallpox. The health authorities can then eliminate school children from the schools if they are not vaccinated. There is a great hubbub about this law. It is a natural thing, I suppose, that we should have a great deal of interest in any of these problems where personal rights are concerned and where we bring in clearly the question of how far the individual is responsible to the whole community.

That is a settled point if anybody will stop to think. We send off the individual male to have him shot any time we feel it is necessary for the protection of the community. We make personal right purely subsidiary to the rights of the community. But when it comes to a thing of this kind we begin to dispute it because of the belief on the part of some that vaccination does not protect.

What are we going to do about it in our schools? We have an initiative measure proposed that will make it impossible for any compulsion to be exercised. If we do not stop in some way the growth of the large number of unvaccinated children in the state of California at the present time (and this applies to many other states as well), it is inevitable that before long we shall have such a large unvaccinated population of children that we shall have a great epidemic. This will come about because history repeats itself. Smallpox is a disease of children, or used to be. The only way in America to control

smallpox is to get some kind of vaccination in groups or at certain ages and with us that means the schools.

Infant vaccination of the type practiced in England is impossible under our existing laws. Therefore, it is at the school age that this question comes up and has to be settled. It goes on through the school age, of course, into the college and university age, and some of us who have had experience with smallpox in colleges and universities realize that in the school it causes more disorder than almost anything else that is apt to take place, because of the public fear connected with this disease, due to the age-old terror of such epidemics.

View your community for a while: Smallpox breaks out; half of the children are found vaccinated and half unvaccinated. Under the present laws the Health Officers can send away the children from schools who are not vaccinated and keep the schools open for those who have protection, but not for the others.

Under the new plan, if this initiative measure passes, they could do nothing of the kind. We may say, as many do already, let the children of those who haven't enough sense die and after a while you will have a generation that has enough sense to believe in vaccination. But it is a little rough on the children. They are not responsible for their parents; many would have chosen otherwise, no doubt, if they had the opportunity. So we can't put the burden on the children. We must put it on the community and make it our principal responsibility to protect those children, to save their lives and save the community from all these things that go to make up what we know as a "smallpox epidemic."

My feeling is that the California law as it exists at the present time has great elements of danger and is the extreme limit we can go with any real concern for the safety of our children. If we wish to reap the whirlwind we can reap it by passing this new measure. We can get our lesson which will cost us thousands of dollars and thousands of lives; and each generation can learn this thing over and over again as time goes by. But if there is anything in education and in civilization it is to learn from the lessons of the past, and the lesson of the past in regard to smallpox is easy to read and easy to understand. The difficulty is that the common sense man doesn't argue about it but the crank will and will keep it up, and until real difficulty comes the ordinary man takes no interest.

The great danger that we have in public preventive medicine is the fact that it works; consequently people think that it has not been necessary. A distant danger is not appreciated. One near at hand causes a panic; so that the more effective these public health measures become the more easy it is to oppose them, to make them appear unnecessary, and that is particularly true in regard to smallpox.

It all gets back, therefore, to common sense. Shall we learn by the lessons of the past? Shall we protect our school children? Shall we protect their future? Shall we hold together what we have now in the way of vaccination regulations? Or shall we give way entirely to the pressure of certain individuals, well-intentioned, no doubt, but incapable of scientific understanding or reasoning who insist that the right of the individual is superior to the right of the community?

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Take Notice! The Fiftieth Annual Meeting of the A. P. H. A. will be held in New York City, November 14-18, 1921.

SYMPOSIUM ON SMALLPOX

IV. MEDICAL AND ANTI-MEDICAL LEGISLATION IN CALIFORNIA

CHESTER H. ROWELL,
Editor of the Fresno Republican,
Fresno, Cal.

Read before the General Sessions, American Public Health Association, at San Francisco, Cal., September 17, 1920.

YOUR incoming president spoke of the importance of realizing that public health is not simply the business of the physician. So I appear before you, not as a physician, but as a newspaper editor and practical politician to talk to you of the political aspects of this case. In other words, I propose to make to you a political speech, upon immediate political issues as they exist in California at this time, and as in one form or another they chronically exist in all our states.

The mere existence of cults, of irrational attitudes toward life, is not of public importance until these cults go into politics. If the Holy Rollers, for instance, think they can save their souls by going through their gyrations, then, so long as they do not unduly disturb the public peace they have the religious liberty to roll. But if the Holy Rollers were to go into politics, to pass laws to compel the rest of us to roll, then the activities of that cult would become of public importance. What I wish to emphasize to you, then, is that there are cults (and I refer not merely to the principal religious sect among them, but to numerous religious, philosophical and social cults) which are actively in politics to obstruct health measures and promote anti-health measures on our statutes, and that the only remedy for their politics is for us to go into politics against them.

There is a peculiar psychology in it. You have heard Dr. Whipple speak of the importance of emphasizing that medicine is a science. That is not enough. We are dealing with people who think that the mere demonstration that medicine is a science is nothing to its credit. They do not believe in science nor in the validity of scientific method. We have to begin further back, and educate people to realize that there is such a thing as science, that it is based on facts, and that facts are important.

Going back over the history of human thought, you find that men began with imagination and faith. Then poets and priests ruled us, because they deal in imagination and faith. Gradually we went on to the age of argumentation, which in the Middle Ages ruled even religion and in part of the eighteenth century dominated even poetry. Then the lawyers and politicians ruled us. Governmentally we are in that stage yet. Our laws, our legislative and judicial procedure and most of the conduct of our lives are still based on it.

Only late in the development of the intellect do we reach the Age of Finding Out. That is the scientific attitude, which few people have even yet reached, in regard to medicine or anything else. So it becomes necessary to train our people to recognize facts as facts and evidence as evidence, and to realize that when a fact is established by evidence, that is something important.

You will meet, for instance, in your discussions of all these things, arguments such as I heard today at lunch from one of the most important men in California, on vivisection. This man was opposed to it, partly because he denied the hypothesis that men are more important than dogs, and partly because, since "vivisection" is torture, no evidence that it is not torture is to the point.

This was an intelligent man. If he was capable of that attitude, what shall you do with the unintelligent? For we have this peculiar psychology, which is sometimes organized into cults, but which also floats around through the intellects of thousands of unorganized people who are amenable to the sentimental propaganda of these cults. If it were merely the organized cults we should need only to organize to outvote them. But when these organized cults, most of whose members are themselves beyond education, proceed to miseducate the others, then it becomes necessary for us to do some counter-educating.

The immediate illustrations here in California—and though many of you are not from California, I think these California illustrations will be of significance to you all—are the four anti-health measures now on the ballot and to be voted on by the people of California this fall.

One of them is the anti-vaccination measure. That measure is significant in itself and still more significant in its source. As now on the ballot it has been reduced to a mere anti-vaccination measure. What it was in the beginning and still is in ultimate intention I will tell you in a minute. As an anti-vaccination measure, it has two purposes. One, as has been pointed out to you, is to forbid the health officers to exclude from the schools non-vaccinated children even in time of epidemic. The other is to get at the universities. You see, they can get at the legislature and scare the legislators into passing laws; but, unfortunately for them, the constitution confers the legislative power over the university not on the legislature but on the regents, and the regents are appointed for sixteen years. I have just been reappointed and my present term runs out in 1936. Meantime it is presumed to be a matter of complete indifference to me what the people think about my conduct—and if I were that sort of a man there might be something in the presumption.

The health authorities of the university commit what these cultists allege to have been decided by the Supreme Court to be assault and battery on the students, by vaccinating and physically examining all of them, conscientious objectors included. Any student who will not submit to that assault and battery cannot receive a free education in California from the University of California. I am not sure about Stanford. Yes; Dr. Wilbur says it is even worse at Stanford. Obviously that sort of autocrats and aristocrats, who delight to defy the people and who serve for life—generally they are reappointed and each appointment is for sixteen years, while thirty-two years is a fair working life—are necessarily persons that the people must rise up against. Therefore they insist that constitutional authority be granted, compelling us to refrain from these assaults and batteries on the students of the University of California.

That, however, is the reduced minimum. It is what is left of what they started out to do. Let me tell you something of what they originally started to do, and what in Oregon they have actually done. The important part of this anti-vaccination law is not merely that it is an anti-vaccination law, but that it is the product of organized politics.

There is a political organization which announces that it is in politics and that it has raised a political campaign fund—therefore, I am saying nothing unjustified against it when I accuse it of politics—which calls itself the "Public School Protective League." I will read you its program, from a summary which I recently published, all its facts taken from the report of this League itself—though naturally the interpolated comments are my own.

"The League boasts that it procured the passage of laws exempting school

children from physical examination and excluding 'propaganda' (by which it explains that it means hygienic and physiological education) from schools, and secured the defeat of bills for teaching dietetics, home nursing and care of the sick in the schools, and for physical examination of school teachers, to see if they had diseases which could be communicated to the children; for the establishment of dental nurses, and for certificates of health to children granted work permits. It also opposed the bill for a bureau of child hygiene, to carry on the work of the Children's Bureau of the national government, and while it was not able to defeat this bill, it did succeed in getting it amended so as to make the examinations of the bureau voluntary. It protests that, under this law, the agents of the bureau are weighing and measuring children, and it is taking legal steps to prevent this invasion of medical freedom. In Los Angeles it secured the enactment of an ordinance which not only forbids the examination of any child, except upon its parents' consent, but also forbids lectures on pathology and disease. This latter prohibition is especially significant because it is not physical but educational. This minority, by political intimidation, has thus actually made it illegal in Los Angeles to teach in the schools the ascertained facts of health and disease. Also, it is illegal to look at the throat of a child suspected of having diphtheria, to see whether its condition is probably a danger to other children.

"It also obstructed and largely prevented the examination of children returning after the influenza epidemic in Los Angeles. It compelled the exclusion from the schools of a series of lessons on the influenza prepared by the State Board of Health and distributed by the Junior Red Cross, thus again obstructing education. It also stopped the writing of essays on the influenza by school children in Pasadena.

"It obstructed the 'health chore' system of the National Tuberculosis Association in the schools and stopped the weighing and measuring of children in Redondo, Bakersfield, Baldwin Park, Sierra Madre, Porterville and other places, and prevented the introduction of this pernicious medication elsewhere.

"It also stopped lectures on hygiene in the Los Angeles high schools conducted by representatives of the War Camp Community Service and by the Y. M. C. A. and prevented the use of Red Cross funds in various places to pay the salaries of school nurses.

"It has a regular legal bureau which watches the schools everywhere and resorts to the courts, as well as to political influence, to stop every physical step for the protection of physical health matters against which it can possibly find any legal obstructive measures."

This is the program of alleged accomplishment of this League, taken from its own reports. Its initiative proposal, now reduced to an anti-vaccination measure, was originally much broader. In its original unreduced form it is on the Oregon ballot now, and it is the announced purpose of the organization to put the other half through in California, too, if this half passes now. As originally announced, it prohibited not merely the requirement of vaccination as a prerequisite for attending school, but the requirement of any sort of treatment or inoculation as a condition for any sort of activity, employment, privilege or right, anywhere. It would have prohibited any precautions against the employment of typhoid carriers in the handling of food. It would have prevented us from keeping typhus from coming in from Mexico or bubonic plague from China, or from keeping anything from spreading anywhere. It would have made impossible many of the most fundamental health protective activities. But, under advice, as a matter of tactics, they concluded to make two bites of it, and this time propose only this limited measure, covering vaccination alone.

That is enough for this particular measure. Another measure of which Dr. Whipple has spoken is the anti-vivisection law. Its form is particularly deceptive. On its face it seems to prohibit the "vivisection or torture" of a living animal. Obviously people do not want animals tortured. But concealed in the next clause is a definition that any physiological or pathological experiments for the purpose of physiological or pathological investigation shall be defined to be "torture, dissection and vivisection." In other words, if you take two dogs and feed one of them on meat and the other on dog biscuits, to find which one gets fat first, this law defines that feeding to be "torture, dissection and vivisection." Actually that is the sort of experiments that probably the huge majority of these "vivisectionists" do—though not necessarily with dog biscuits.

This law, if passed, instead of merely stopping a few obscure and highbrow investigations in a few laboratories, would actually make the price of pork prohibitive, by preventing measures to stop hog cholera. It would prohibit sacrificing a few hogs to save the lives, for a more useful death later, of many hogs. It would stop all anthrax experiments. It would ruin the olive industry by stopping the botulism investigations. It would make vaccination impossible even for those who wished it, because the vaccine could not be produced in California, and if imported from elsewhere it could not be standardized or tested in California. It would compel every child bitten by a mad dog, in the present prevalence of rabies in Central California, to die a horrible death from hydrophobia. It would condemn many children to choke to death from laryngeal diphtheria to save a few horses from a needle-prick. It would stop breeding experiments on animals but not on plants. You could breed long-staple cotton, but you must not breed long-wool sheep.

The man I was talking to today objected to all scientific experiments on animals, and at that very moment he was eating oysters—and eating them alive. And he was pouring on their tender bodies strong citric acid, out of a lemon, and I think a little of the irritant essential oil of horseradish.

Such a law would have cost me my life at least three times in the last three years, to save three guinea pigs. I have just enough egotism to think that if my appetite was worth the life of the chicken I ate this noon, my life was worth the three guinea pigs it cost.

It would make certified milk impossible. It would obstruct not only the health activities, but the industrial activities of the state. It is the most extreme anti-vivisection measure ever proposed anywhere. That is perhaps one of the advantages of an initiative measure, from the standpoint of its opponents. When you propose a measure in the legislature it may be fantastic enough in the beginning, but if it comes out it is in a form that has survived discussion. When it is proposed by initiative it comes in the form that satisfies its proponents, which is rarely a form to satisfy the people. Consequently, most initiative measures, including some with a good purpose, are beaten. We have had that experience with prohibition legislation. Even people who believed in prohibition have in the past been compelled to vote against certain prohibition measures, because of outrageous features put into them to satisfy not the people, but their extremist proponents. Fortunately this measure is of the same sort, so fanatically impossible that every rational person — unfortunately there are many irrational ones— will vote against it.

There are two other measures on the ballot to which I will refer only briefly. One is the preposterous chiropractic measure, to permit the chiropractics to license themselves, practically regardless of education. There are 27 sects of drugless healers in California. Under the present law, any one of them who can show half the education required of

other practitioners can get a license now. That is reasonably liberal. Under this initiative they would not have to have even that half-education. If any of them cannot get licenses now it is because they do not have that half-education. They propose a licensing board for this one sect. The other 26 would have an equal right to separate boards. So long as people have the hallucination that there are sects in medicine, as there are in religion, one sect has as good a right as another. And it is scarcely worth while, in the present stage of public enlightenment, to try to explain that there is no such thing as sectarianism in medicine. But the people can understand that there is such a thing as education. They can understand, for instance, that there is no such thing as a chiropractic high school education, and that it takes no separate chiropractic board to find out whether a chiropractic applicant studied chiropractic mathematics or chiropractic Latin in a chiropractic high school. They might understand the same thing as to chiropractic chemistry, anatomy or physiology, and so they could realize that there is no sectarianism or anti-sectarianism in requiring these applicants to practice to show that they have education enough to be trusted to practice.

The public health aspect of it is this: If ignorant practitioners of any school are turned loose, persons who know only that they are sick will go to them. Some of them may have incipient or masked tuberculosis, or tuberculosis which is at first only incident to some other disease, without directly obvious tubercular symptoms. Under treatment, or in spite of the treatment, they may get better of the other troubles, and only know that they are "better," without ever having learned that they also have tuberculosis, still in a curable stage. Later on, when the developing tuberculosis finally brings them under the Board of Health, it is too late to do anything. And the same thing is of course true of other diseases.

The licensing of ignorance to practice on the people is licensed murder, and it ought not to be permitted.

While I am on the subject I will refer briefly to another measure you Californians ought to be warned against. The last legislature properly passed a measure confining the right to possess and dispense narcotics, morphine and cocaine and hypodermic syringes to those people who are in any fashion licensed to administer drugs.

Certain drugless healers have held this up by referendum. They say while they are not allowed to administer epsom salts and quinine they should be permitted to administer cocaine and morphine. Some of them are Chinese quacks; some reputable individuals.

This would be licensing ignorance to manufacture dope fiends for your treatment afterwards.

These happen to be the four measures on the ballot in California. My purpose, however, in speaking to you was to urge the duty of those who believe not merely in medical science, but those who believe in any science, those who believe in truth, those who believe in facts, those who believe in evidence—in other words, those who have the rational attitude toward life, to recognize that while the irrational have the right to be irrational, if they go into politics we will, too.

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The Symposium on Health Centers, including the papers read at the San Francisco meeting of the Association, are scheduled for the March issue of the JOURNAL.

SYMPOSIUM ON SMALLPOX

V. THE MATHER BROADSIDE

Several REASONS

Proving that Inoculating or Transplanting the *Small Pox* is a Lawful Practice, and that it has been Blessed by GOD for the Saving of many a Life.

By *Increase Mather*, D. D.

Exoc. XX, 13. *Thou shalt not kill.*

Gal. 1, 10. *Do I seek to please Men? if I please Men, I should not be a Servant of* CHRIST.

It has been Questioned, Whether *Inoculating* the *Small Pox* be a Lawful Practice, I inclined to the Affirmative, for these Reasons.

I. Because I have read, that in *Smyrna*, *Constantinople*, and other Places, Thousands of Lives have been saved by Inoculation, and not one of Thousands has miscarried by it. This is related by Wise & Learned Men who would not have imposed on the World a false Narrative. Which also has been published by the *Royal Society;* therefore, a great Regard is due to it.

II. We hear that several *Physicians* have Recommended the Practice hereof to His *Majesty*, as a Means to preserve the Lives of his Subjects, and that His Wise and Excellent *Majesty King* GEORGE, as also his *Royal Highness* the *Prince* have approved hereof, and that it is now coming into practice in the Nation. In one of the Publick Prints are these Words, *"Inoculating the Small Pox is a safe and Universally Useful Experiment."* Several Worthy Persons lately arrived from *England* inform us, that it is a successful Practice there: If Wise & Learned Men in *England*, declare their Approbation of this *Practice*, for us to declare our Disapprobation will not be for our Honour.

III. GOD has graciously owned the *Practice of Inoculation*, among us in *Boston*, where some Scores, yea above a hundred have been *Inoculated*, and not one miscarried; but they Bless GOD, for His discovering this Experiment to them. It has been objected, that one that was Inoculated, died, viz. Mrs. *D.....ll;* but she had the *Small Pox*, in the common way before, & her Friends and nearest Relations declare that she received no hurt by *Inoculation*, but was by a fright put into Fits that caused her Death. It is then a wonderful Providence of GOD, that all that were *Inoculated* should have their Lives preserved; so that the Safety and Usefulness of this Experiment is confirmed to us by Ocular Demonstration: I confess I am afraid, that the Discouraging of this Practice, may cause many a Life to be lost, which for my own part, I should be loth to have any hand in, *because of the Sixth Commandment.*

IV. It cannot be denied but that some Wise and Judicious Persons among us, approve of Inoculation, both *Magistrates* and *Ministers;* Among Ministers I am One, who have been a poor Preacher of the Gospel in *Boston* above Threescore Years, and am the most Aged, Weak and unworthy Minister now in *New England*. My Sentiments, and my Son's also, about this *Matter* are well known. Also we hear that the Reverend and Learned Mr. *Solomon Stoddard* of *Northampton* concurs with us; so doth the Reverend Mr. *Wise* of *Ipswich*, and many other younger Divines, not only in *Boston*, but in the Country, joyn with their Fathers. Furthermore, I have made some Enquiry, Whether there are many Persons of a Prophane Life and Conversation, that do Approve and Defend *Inoculation*, and I have been answered, that they know but of very few such. This is to me a weighty Consideration. But on the other hand, tho' there are some Worthy Persons, that are not clear about it; nevertheless it cannot be denied, but that the known Children of the Wicked one, are generally fierce Enemies to Inoculation. It is a grave saying of Old *Seneca, Pessemi Argumentum Turba est.* For my part I should be ashamed to joyn with such Persons; *O my Soul come not thou into their Secret, unto their Assembly be not thou United.* I am far from reflecting upon all that are against *Inoculation*. I know there are very worthy persons (with whom I desire to Live and Die) that are not clear in their Judgments for it, and they are greatly to be commended and honoured in that they will not act against a doubting Conscience; yet it may be some of them might change their minds, if they would advise with those who are best able to afford them Scripture Light in this as well as in other Cases of Conscience.

Novemb. 20, 1721.

That the Cause may have Two Witnesses, here are subjoyned the Sentiments of another, well known in our Churches, of which I declare my hearty Approbation.

Sentiments on the Small Pox Inoculated.

A *most Successful, and Allowable Method of preventing* Death, *and many other grievous Miseries, by the* Small Pox, *is not only* Lawful *but a* Duty, *to be used by those who apprehend their Lives immediately endanger'd by the terrible Distemper.*

But the Method of managing and governing the Small Pox *in the way of* Inoculation, *is a most successful and allowable Method of preventing* Death, *and many other grievous Miseries by this dreadful Distemper. Therefore, 'tis not only* Lawful, *but also a* Duty *to make use of it. None but very foolish, and very wicked People will deny the* Proposition *in this Argument; The* Assumption *is all that is disputed. But now, That this is a most* Successful *Method we have all the Evidence that Humane Reason can ask for.*

Men of Honour, and Learning, and Incontestible Veracity, not one or two, but a considerable Number of them, agree in the Relation they give us, of it's being used with constant Success *in the* Levant. *It has been used upon Vast Multitudes, even many Thousands, and for some Scores of Years; And when regularly used, it yet appears not, that ever one* Person *miscarried of it, or had the* Small Pox *after it. We have sufficient Proofs that it is a* growing Practice *in those Countries. If it had been unsuccessful, or been attended with bad Consequences, it must needs have been put out of Countenance, and have ceased long ago. Such Testimonies on the other side, as our People have been frighted withal, are not worth a Straw. No Man of sense that considers them can lay weight upon them:* Ask us not, why we say so!

And we have an Army of Africans *among our selves, who have themselves been under it, and given us all the Assurance, which a Rational Mind can desire, that it has long been used with the like Success in* Africa. *Yea,* Behold, ye yourselves have seen it. *The Operation has been performed on an Hundred & more, in the Town of* Boston: *And not one of them has miscarried: They have every one of them hitherto done well. They all give Thanks to our Merciful Redeemer for leading them into it. They would every one of them rather undergo it again, and many times over, than suffer the* Small Pox *as People ordinarily suffer it in the common way of Infection. The Story of* one *Dying after it, is trump'd up with so much folly and falshood, that it is unworthy to have any Answer given to it. In fine; Experience has declared, that there never was a more unfailing* Remedy *employed among the Children of Men.*

That this is an Allowable *Method, is plain; Because there can be no Objection brought against it, but what will also lie against the use of almost all the* preventing Physick, *that is used in the World. The Objector must maintain, That it is unlawful for a Man who would preserve his Life and Health, to* make himself Sick *in a way that constantly tends to Preservation. But a very Familiar Case will so illustrate the Matter, as to put it beyond all Dispute. Suppose, There is a* Bloody Flux *prevailing in the Town where I live, which proves Mortal to a great part of them that have it; many more than Four Hundred perish by it in a Month. A Physician is Master of a* Purge; *which whosoever takes it, is in an ordinary way, delivered from the danger of that Mortal Distemper. An* Artificial Purge *seasonably taken saves him from Death by the* Natural Purge, *which he is exposed unto. Will any scruple the taking of this* Artificial Purge? *Surely, None but such as want a Purge of* Hellebore! *Here the Man* makes Himself Sick, *while He is well: and thinks that he is not* the whole who has no need of a Physician, *while he has the* Humours *in him which render him obnoxious to a* Deadly Sickness. *He won't think it his Duty to stay till God send the Sickness in* another way *upon him; when it will be too late for him to seek relief; But he will give Thanks to GOD for teaching him, how to* make himself Sick, *in a way that will save his Life. He most properly* takes GOD's Time to fall Sick: *He does it seasonably, and in the* Time *when GOD has* commanded *him to do it.*

Many Good People, who are sensible how weak their own Judgements are, will for a Case of Conscience *be much assisted by the Judgement of the most able Divines in the Country. Now every Body knows how* they *concur in their approbation of this Practice.*

The Design *and the* Spirit, *(evidently of no good Original) with which the fierce opposition to this Practice is carried on will also go a great way towards determining of Good People in Favor of it. The* Conclusion *will*

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That the Cause may have Two Witnesses here are subjoyned the Sentiments of another, well known in our Churches, of which I declare my hearty Approbation.

Sentiments on the Small Pox Inoculated.

A *most Successful, and Allowable Method of preventing* Death, *and many other grievous Miseries, by the* Small Pox, *is not only* Lawful *but a* Duty, *to be used by those who apprehend their Lives immediately endanger'd by the terrible Distemper.*

But the Method of managing and governing the Small Pox *in the way of* Inoculation, *is a most successful and allowable Method of preventing* Death, *and many other grievous Miseries by this dreadful Distemper. Therefore, 'tis not only* Lawful, *but also*

a

be Victorious; That when People have their Lives endangered by the Small Pox *hovering about them, they not only* may *use the Method of Inoculation, to save their Lives, but they even* ought to do it, *if they can. They keep not in good Terms with the* Sixth Commandment, *if they do it not.*

INFERENCES

I. *Hence the Physicians may do well to beware, of going too far, and of taking wrong steps, for the frighting of People from this Practice, lest they Unawares have more to* answer for *than Men of their Profession should be willing to.*

II. *Hence, the* Parents, *and* Masters, *and* Husbands *and* Wives, *whose Relatives have beg'd as for their Lives, that they might have leave to save their Lives, by this Method, should not by their obstinate Violence hinder them from it, least on the* Loss of their Lives *they have sad matter of Reflection left unto them.*

III. *Hence, a People will do well, not to be too hasty in Resolves, that should forbid their Neighbours, to do what God has made their* Duty *for the Preservation of their Lives in this Method; lest they do in Effect* forbid Obedience to the Sixth Commandment. *Especially, when the Bugbear of the* Pestilential Consequences, *is a* Falshood, *that has not the least shadow of* Reason *for it, and has the* Experience *of all the Countries under Heaven, where they use the* Inoculation, *to confute it. Nor has it ever been known of Later Ages, that the* Plague *ever began any where but in the* East-Indies, *from whence it has always been brought unto the Western World. And when the* King, *and* Prince, *and most Eminent Physicians in* London *and* Dublin, *and elsewhere, have declared their Approbation of it; it seems not much for our Honour, to declare that we disapprove it.*

IV. *Hence to Rave, and Rail with such bitter* Execrations, *as are too commonly used, against the* Ministers, *and other serious* Christians, *who favour this Practice, is a very crying Iniquity; and to call it a* Work of the Devil, *and a* going to the Devil, *is a shocking* Blasphemy; *and much more likely to bring the* Plague *among us, than the Practice, which they so ignorantly and maliciously do charge with such Imaginary Consequences.*

FINIS.

BOSTON: Printed by *S. Kneeland* for *J. Edwards*, at his Shop in King-Street. 1721.

NOTE

This tract by Mather is one of a number of publications by him at about the same time on the same subject. He seems to have learned of the process from his colored slave, Onesimus, and five years before, in 1716, he determined to lay the matter before physicians. The story of Onesimus, he asserts, was corroborated to him by Africans who had come to this country.

There was quite as much discussion about vaccination in the Colonies of 1721 as there is in the country today, and the anti-vaccinationists did not scruple to ridicule the credulity of the old minister. Any who are interested in this controversy will find it admirably set forth in "Some Lost Works of Cotton Mather," by George Lyman Kittredge, Proceedings of the Massachusetts Historical Society, Vol. XLV. R.

Verso of [illegible] several Reasons. Boston.

(2)

a Duty to make use of it. None but very foolish, and very wicked People will deny the Propolition in this Argument; The Assumption is all that is disputed. But now, That this is a most Successful Method we have all the Evidence that Humane Reason can ask for. Men of Honour, and Learning, and Incontestible Veracity, not one or two, but a considerable Number of them, agree in the Relation they give us, of it's being used with constant Success in the Levant. It has been used upon vast Multitudes, even many Thousands, and for some Scores of Years: And when regularly used, it yet appears not, that ever one Person miscarried of it, or had the Small Pox after it. We have sufficient Proofs that it is a growing Practice in those Countries. If it had been unsuccessful, or been attended with bad Consequences, it must needs have been put out of Countenance, and have ceased long ago. Such Testimonies on the other side, as our People have been frighted withal, are not worth a Straw. No Man of Sense that considers them can lay weight upon them: Ask us not, why we say so!

And we have an Army of Africans among our selves, who have themselves been under it, and given us all the Assurance, which a Rational Mind can desire, that it has long been used with the like Success in Africa. Yea, Behold, ye yourselves have seen it. The Operation has been performed on an Hundred & more, in the Town of Boston: And not one of them has miscarried: They have every one of them hitherto done well. They all give Thanks to our Merciful Redeemer for leading them into it. They would every one of them rather endure it again, and many times over, than suffer the Small Pox as People ordinarily suffer it in the common way of Infection. The Story of one Dying after it, is trumpd up with so much folly and falsehood, that it is unworthy to have any Answer given to it. In fine, Experience has declared, that there never was a more infallible Remedy employd among the Children of Men.

That this is an Allowable Method, is plain, Because there can be no Objection brought against it, but what will also lie against the use of almost all the preventive Physick, that is used in the World. The Objector must maintain, That it is unlawful for a Man, who would preserve his Life and Health, to make himself Sick in a way that constantly tends to Preservation. But a very Familiar Case will so illustrate the Matter, as to put it beyond all Dispute. Suppose, There is a Bloody Flux prevailing in the Town where I live, which proves Mortal to a great part of them that have it; many more than Four Hundred perish by it in a Month. A Physician is Master of a Purge; which whosoever takes it, is in an ordinary way, delivered from the danger of that Mortal Distemper. An Artificial Purge seasonably taken saves him from Death by the Natural Purge, which he is exposed unto. Will any scruple the taking of this Artificial Purge? Surely, None but such as want a Purge of Hellebore! Here the Man makes Himself Sick, while he is well: and thinks that he is not the whole who has no need of a Physician, while he has the Humours in him which render him obnoxious to a Deadly Sickness. He won't think it his Duty to stay till God send the Sickness in another way upon him; when it will be too late for him to seek relief; But he will give Thanks to GOD for teaching him, how to make himself Sick, in a way that will save his Life. He most properly takes GOD's Time to fall Sick: He does it seasonably, and in the Time when GOD has commanded him to do it.

Many Good People, who are sensible how weak their own Judgements are, will for a Case of Conscience be much assisted by the Judgments of the most able Divines in the Country. Now every Body knows how they concur in their approbation of this Practice.

The Design and the Spirit, (evidently of no good Original) with which the fierce opposition to this Practice is carried on will also go a great way towards determining of Good People in Favour of it. The Conclusion will be Victorious; That when People have their Lives endangered by the Small Pox hovering about them, they not only may use the Method of Inoculation, to save their Lives, but they even ought to do it, if they can. They keep not in good Terms with the Sixth Commandment, if they do it not.

INFERENCES.

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SYMPOSIUM ON SMALLPOX

VI. OUTBREAK OF SMALLPOX WITH OBSERVATIONS AND METHODS OF CONTROL

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Portsmouth, Va.
Lately Major M. C., U. S. A.

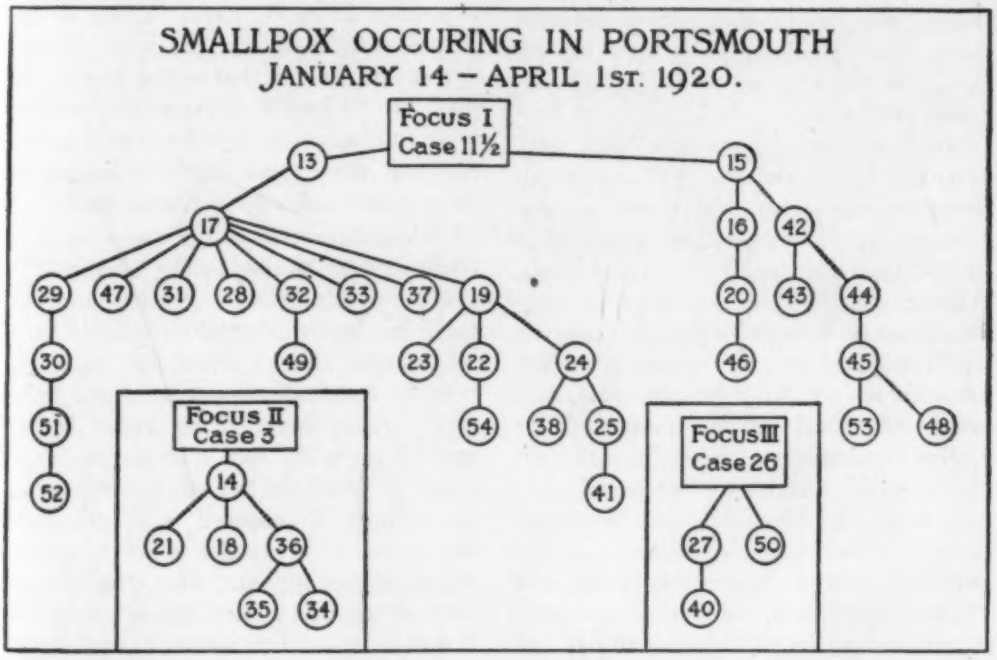
THERE was an outbreak of smallpox in the City of Portsmouth, Va., several months ago which demanded from the Health Department quick action and close attention. From January 14 until June 1, there occurred 75 cases, about three-quarters of the whole among the colored people. Just at the time of the appearance of the disease the city was unfortunate in not having any place in which to care for cases of this nature. Up to the beginning of the war an isolation hospital had been maintained by the City of Norfolk on Craney Island, which was conveniently located near this city and available for Portsmouth cases. This arrangement was terminated, however, soon after the beginning of the war, the Island being taken by the Government for military purposes. Hence, when smallpox made its appearance in Portsmouth there was no disposition of the patients other than local quarantine in their homes. Such a disposition was most unsatisfactory to the Health Department but, owing to certain state regulations regarding the location of institutions caring for this disease, more satisfactory arrangements could not be made.

All cases that occurred were closely watched and every possible precaution was taken to localize the disease. Accurate case histories were taken by nurses, and health inspectors visited regularly all patients in quarantine. All food that was consumed by the patients as well as other members of the family, who might have been caught in the house at the time of carding, was furnished by the city through the Health Department. Each house in which there was a case of smallpox was visited almost daily. By this method close and accurate watch was maintained over each individual case. As each new case occurred, the health officer confirmed the diagnosis and this patient was immediately visited by a nurse who made subsequent visits every second or third day or more often if the condition of the patient was unsatisfactory. It was her duty to ascertain all facts pertaining to the case to be filed in the office. Practically in every instance the definite contact was established. Much credit is due the ingenuity of the nurses for their perseverance and persistance in establishing the sources of contact. As is well known to all people who deal with the negro race, they are especially noncommital, it being a very hard task to secure any information from them concerning another member of their race. This at first seemed to thwart the efforts of the nurses and inspectors in ascertaining the source of contagion, and it was only by the most displomatic methods, which were fortified by the knowledge of the cases that had been reported, that an accurate contact chart was made. In conclusion thereof, each case was successfully traced and its relation with the source of infection ascertained.

That smallpox is gradually becoming more mild is apparently true, but from some of the mildest cases there have developed some cases of the most severe type. The efficiency of vaccination has been amply proven in numerous instances. That successful vaccination is a positive preventive measure is borne

out by this epidemic. That only one victim of smallpox showed an evidence of a previous successful "take" is conclusive to the mind of the writer that smallpox vaccination, when successfully performed, renders a perfect immunity. In this one case it is doubtful as to whether the scar presented was that of a previous vaccination or from some minor injury, but the patient insisted that he had been successfully vaccinated and further that he had smallpox some 15 years ago. This was the only case that gave a history of a previous attack. Males seemed to be more susceptible than females, with 60% of the cases, while from 19 to 40 years seemed to be the age group in which the disease was most frequently seen, 76% of the whole being in this group. Only 7% were under 19 and 17% over 40. The popular impression that smallpox is not as severe as it was in bygone days was substantiated in a measure in this epidemic, but there were eight or nine cases as severe as the writer had ever seen. These few cases were of the confluent type and the "pitting" that resulted therefrom was most characteristic.

Previous unsuccessful vaccinations have been interpreted by laymen and also by some physicians to mean a natural immunity present in some individuals such as to render them incapable of contracting smallpox. This belief has not been substantiated as evidenced by the fact that 32% or one-third of the total number of cases that occurred gave positive and definite histories of previous unsuccessful vaccinations. Some of the cases had been unsuccessfully vaccinated as many as four times. It is evidently true that those who have had a successful "take" or who have a natural immunity are the only ones who have positive protection. The mere fact of being vaccinated and not having a positive reaction does not signify immunity. Of the whole 67% had never been vaccinated. Complete vaccination was carried on in infected areas and all school



children who did not have a successful scar were revaccinated. House to house compulsory vaccination was effected with very good results. When a new case arose the vaccination squad immediately covered the adjacent area.

The Health Department met with no opposition in its vaccination crusade. The public was strongly in favor of this procedure. Publicity was given as to the number of cases being reported and as to the value of vaccination. The greatest difficulty experienced during the epidemic was in locating new cases. The colored population easily recognized the disease when it occurred in a family, but there were a number of undetected cases that gave rise to new series. As a rule, the negroes do not have physicians attend them until they are dangerously ill, hence, very few cases were reported by physicians. Our means of detection was by house to house vaccination, the squad having been instructed to be constantly on the alert for new cases. Another method of discovering neglected cases was the coöperation given by insurance agents, rent collectors and tradesmen. A large number of cases were discovered in this manner. The Police Department also was keenly alert and reported a number of suspects. Certain blocks in the town were subjected to a house-to-house inspection. Colored preachers were communicated with and requested to ask the coöperation of their congregations as well as to advise immediate vaccination. In every instance these preachers complied with the request made. Notifications of the health officer by anonymous letters, telephone calls, etc., upon investigation almost invariably proved to be of smallpox. Every possible means was exerted to locate unreported cases. With all these various agencies at work, practically every case was located, but sometimes not before several relatives or visitors had contracted the disease. The period of incubation seems to have been from 14 to 21 days, scarcely ever less than 14. The premonitory symptoms which usually ran a typical course of chill, backache and severe headache with slight febrile disturbances, generally consumed a period of from three to six or seven days, most often four days. The eruption usually lasted from eight to ten days in mild cases and from two to three weeks in severe cases. From the time of exposure a period of from two to three weeks usually elapsed before the characteristic rash appeared.

The course of a complete case usually ran from 25 to 30 days. There is one notable fact in connection with the epidemic and that is that not a single case died. In all justice to those families who were in quarantine for the period of the epidemic there were only two known instances of breaking the regulations.

In conclusion it is far from ideal to contend with a disease like smallpox in epidemic proportions without hospital facilities, but under the circumstances it is thought that Portsmouth was extremely fortunate in not having a great many more cases. The writer in the past 14 years has seen a large number of cases of smallpox but has never had an opportunity to observe with the same degree of accuracy the marked advantages of vaccination. The efficiency of such prevention is not questionable, but is a determined fact and any person who contracts smallpox who has not tried to immunize himself by this method should not be made the charge of any county, city or state.

A chart of 43 cases is presented which shows the contacts established from three foci. A list of these contacts will serve to make known under what conditions the infection was communicated. Most of the cases were among negroes, but those in group No. II were all whites.

FOCUS I

Case No. 11½		No.
13	Boarded with	11½
17	Visited	13
29	Visited	17
47	Visited	17
31	Lived at	17
28	Visited	17
32	Visited	17
33	Visited	17
37	Servant from	17
19	Indirect	17
49	Wife of	32
23	Worked with	19
22	Indirect	19
24	Indirect	19
54	Wife of	22
38	Lived with	24
25	Visited	24
41	Mother of	25
15	Indirect	11½
42	Visited	15
43	Lived with	42
44	Lived with	42
45	Lived with	42
48	Lived with	42
53	Visited	45
16	Indirect	15
20	Son of	16
46	Indirect	15

FOCUS II

Case No. 3		
14	Received groceries from	14
18	Husband of	14
21	Same house	14
36	Visited	14
45	Visited	36
34	Visited by	36

FOCUS III

Case No. 26		
50	Brother of	26
27	Visited	26
40	Lived with	27

Since the preparation of this article and its accompanying statement of contacts and chart, 40 additional cases of smallpox were found. All of these were subject to the same supervision and investigation as those here noted and all were traced to their original foci. The city was free from the disease in September, and till the close of the year 1920 only one other case, an imported one, was reported.

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Syphilis and the Periodic Examination.—There is a growing and fortunate tendency to appreciate the value of the periodic physical examination. This entails the keeping of detailed and accurate records. Regarding the technique of the examination, it should comprise history, actual physical examination, urinalysis, blood count, and examination of stained smear and the Wassermann. These constitute the irreducible minimum.

The disease which is unrecognized in countless cases, and which is the cause of many obscure symptoms which show no response to the ordinary routine treatment, is latent syphilis. There is only one means of recognizing this condition and that is the Wassermann reaction. It should be a matter of strict routine because on that can many of the latent cases be discovered. One great obstacle to the use of the routine Wassermann is the prejudice against syphilis. In the eyes of most of the laity and of many doctors, syphilis is not a disease, but a visitation of disgrace and punishment. Unconsciously it is identified with sexual guilt. The article concludes with a case history exemplifying the unnecessary bad health and inefficiency which result from a neglect to apply the routine Wassermann.—Arthur F. Kraetzer, *Med. Times*, XLVIII—10, Oct., 1920. (*A. N. T.*)

SYMPOSIUM ON SMALLPOX

VII. RESULTS OF VACCINATION IN THE PHILIPPINES

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New York City

THE value of vaccination as an effectual safeguard against smallpox, and the comparative harmlessness of this preventive measure, have perhaps never been more completely demonstrated than by the experience in the Philippine Islands, where for many years smallpox claimed 40,000 more deaths annually. Upon the systematic vaccination of all the inhabitants, province by province, the disease disappeared in the wake of the vaccinators. For instance, after the vaccination of the inhabitants of the six provinces in the vicinity of Manila, which had an annual mortality of 6,000 from smallpox, the deaths from this disease were reduced to insignificant numbers. In Manila, with a population of over 250,000 not one death from smallpox occurred in a period of seven years. It is of special interest to note that between 1915 and 1919, when the vaccination of newborn children and new arrivals in Manila was not effectually carried out, the disease promptly reappeared, and in the summer of 1918 over 700 deaths from smallpox were reported in Manila alone.

More than ten million vaccinations were performed between 1905 and 1915 without the loss of life or limb. This simply demonstrates that vaccination in itself is practically unattended with any risk, whenever the operation is performed with a vaccine that has been made under properly controlled conditions and the rules of asepsis are observed in its application.

The instinct to save life and prevent illness and suffering is practically universal. Notwithstanding the feeling against vaccination, I cannot help but believe that if those who are opposed to it could have more detailed knowledge of the wonderful results that have followed its intelligent application there would be very little opposition. In the past, vaccination may have been responsible for severe infection and, in occasional instances, the loss of life or limb. But if these few untoward instances are compared with those of the many thousands of persons who owe their lives to vaccination, it is quite apparent that the gain is on the right side of the ledger. Even if the extravagant claims of bad effects following vaccination were true, the damage done is very small compared with the loss of life and health and the disfigurement that occur among those who are unprotected against the disease.

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Fetal and New-Born Mortality.—Of 137 cases of new-born mortality, 27.44% were caused by syphilis. This agrees with J. Whitridge Williams' results which showed 26.4% of his fatalities out of 70% were attributable to that disease. Holt, using the records of Sloan Maternity Hospital, found only 6.6% out of 720 cases. However, the Sloan records show little use of the Wassermann and no mention of the placental examinations. The reports of many investigators have shown that the Wassermann best detects syphilis. Early and intense treatment of these positive women offer the best results for both mother and child, and if conscientiously carried out, should succeed in lowering the number of new-born victims of congenital syphilis.—L. J. J. Commiskey, M. D., F. A. C. S., *Long Island Med. Jour.*, XIV—10, Oct., 1920. (*A. N. T.*)

COMMON-SENSE VERSUS CUSTOM IN THE APPOINTMENT OF HEALTH OFFICIALS

HERBERT B. LARNER, S.B.
Health Officer, Montclair, N. J.

Once on a time only a minister was deemed fit to be president of a college; more recently only a doctor has been thought competent to be a health officer. Both situations have changed. The college selects the business man of broad vision, while the fitness of the trained engineer for health officer is fast becoming evident.

THE necessity of making appointments to offices in public health work an intelligent consideration of the qualifications needed for such positions, is one which has never been of such paramount importance as is the case at the present time. Occasionally, appointments are so flagrantly political as to be disgusting, but it all too frequently happens that owing to the scarcity of properly trained men, municipalities are forced to accept whatever material is offered them regardless of qualifications. Such a condition of affairs leads to a consideration of the training which is essential to the successful management of a modern health department.

For many years custom has decreed that public health work should be supervised by men who were graduates in medicine, and until comparatively recent years, it was quite natural that this should be so since the curative rather than the preventive aspects of medicine were foremost in the public mind. The duties of health officials not so very long ago were comparatively simple, and except in the larger cities their positions were frequently on a part-time basis with little or no remuneration.

With the development of sanitary science, however, a new era was ushered in. The practicing physician could no longer cope with the public health problems which arose and the services of men with special training became necessary. Such problems as sewage disposal, water purification, malaria eradication and a host of others could wholly, or in part, be successfully dealt with only by the sanitary engineer. Problems in research required the services of bacteriologists and chemists and the building of factories made necessary studies requiring a knowledge of industrial processes, ventilation, dust removal, lighting and numerous other factors relating to industrial diseases. The control of milk and other food products called for the application of a knowledge of subjects not included in the curricula of medical schools, and so the list might be continued to considerable length.

The contrast between modern health department work and that of a few decades ago is very great. Today, in addition to a good working knowledge of the subjects already mentioned, the health officer must possess executive ability of a high order. He must be able to study intelligently the needs of his community and possess an intimate knowledge of the relative values of the numerous phases of health work if he is to expend his ofttimes inadequate appropriation in a manner that will yield the greatest amount of benefit. He must be able to differentiate between sound public health practice and popular fads which attract attention but which do little real good

and tax his financial resources disproportionately to their value.

The knowledge which has been outlined as essential to a successful administration is not to be obtained in a course at a medical college. A medical degree is without doubt an advantage, but so would be a degree in sanitary engineering, since many of the problems which arise relate to the engineering side of health work. It is a fact that most health officials are graduates in medicine, but this has been in the past due to a popular demand based on ignorance of what public health work in its entirety really involves. The times are changing very rapidly, and the public as a result of education, is beginning to take a broader view of the whole situation. As a result there is a growing demand for men who have had thorough courses in public health, and even now, in certain sections of the country at least, a medical degree is no longer the outstanding qualification necessary for appointment to important offices. Many communities which a few years ago would have regarded with indifference the proposal to spend a few thousand dollars for health work, have awakened to the vital need of such work and are in search of men qualified to map out and execute public health programs. The supply of such men is, of course, greatly exceeded by the demand and the problem of meeting the deficiency is a serious one. What will be the ultimate solution of it?

To recruit the necessary health executives from the ranks of medical school graduates is at best only a doubtful possibility. We are told, and the statement is backed with statistics, that of recent years the number of men graduating from medical schools has not kept pace with the increasing population of the country. This is explained by the high cost of a medical education, the required period of interneship without compensation and the prospect of lean years during which the young physician is building up a practice. Certainly, the matter is not pleasant to contemplate, and if the medical student has a career in public health in view after graduation, the expense of at least one year more of study is added to an already heavy burden. The young man contemplating a career along public health lines is quite likely to choose another profession if he feels that his chances of success are dependent upon the acquisition of a medical degree. All of this brings up a question concerning the value of a medical education to the executive health officer when compared with the cost of such training.

In a small rural community where the health officer is frequently called upon to confirm a diagnosis of a case of communicable disease, a medical training is unquestionably indispensable. But in the larger communities having health departments with greater organization and a more sharply defined division of labor, the man with a broad general knowledge of the science of preventive medicine and good executive ability, though lacking a medical degree, is quite capable of administering public health effectively. It is only a matter of time when this fact will be generally recognized and admitted.

In the meantime, however, efforts must be made to relieve the shortage of competent health executives that exists at present. The initial step in this problem should be through legislation. Laws at present in force in many states, specifying that health officers shall be medical graduates, should be amended to give non-medical men who are graduates of recognized schools of public health, opportunities to qualify for positions. Appointments should be made by competitive examinations which should be sufficiently broad in scope to cover the entire field and include all phases of the science. When such laws are in effect there will be an incentive sufficiently great to attract the best type of

men to the profession. More schools of public health will then be required and will be established in connection with other college courses and relief from the present shortage of qualified men will be in sight.

Until such changes are made executive offices in public health work will continue to be filled by political appointment rather than by merit, but it is believed that the day is not far distant when common sense methods of appointment will replace the antiquated custom at present quite generally in vogue.

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SANITATION IN VENEZUELA AND COLOMBIA

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Venezuela and Colombia are so different in many ways that they cannot be grouped together for discussion. For instance, in Venezuela military commanders rule, and every man of public distinction bears the title General, while in Colombia education is held more important and every man in public life is called Doctor, signifying, sometimes incorrectly, notable learning. But in sanitation the present development is about the same in the two republics—that is, scarcely above the primitive. In the rural districts, particularly, cleanliness in living gets little consideration, while in the towns, where the native talent for picturesqueness is so plainly marked, the demand for public hygiene is slight compared to that in most of our North American communities.

Many circumstances account for the primitive stage of sanitation. The heritage of the people, the climate in which they live, the methods of government, lack of education, extreme poverty among all the people except a small upper class, which has in general little concern for the condition of the poor, may all be cited. The climate itself, of course, greatly aids the existence and spread of contagious diseases and renders the fight against them more difficult. On the other hand it seems that the extreme brightness and warmth of the sun must help to keep down disease, by its bactericidal power, and by the process of rapid drying of everything which its rays can reach.

LACK OF VITAL STATISTICS

In both of these countries the index of the condition of public sanitation, Vital Statistics, has scarcely been realized, the author was informed. From casual observation it is evident that the people are sick a great deal from many unidentified ailments, as well as from well known diseases, such as malaria, hook-worm and typhoid fever. It also seems evident that the death rate is high.

PLATE I

Typical Street in Poorer Section of Town. The water spigot in Plate II is under the tree at the right edge.

It is said that the population of Venezuela has not increased during the past hundred years. Accurate information, however, as to the incidence of disease and death, and their causes, is not available, except by private investigation.

Because of the loose social organization, particularly in rural districts, the establishment of a modern system for vital statistics will be difficult, but it is plainly one of the primary needs for the development of public sanitation.

WATER SUPPLIES

The problem of water supply varies widely in the different sections of Venezuela and Colombia. In general, public water supplies are demanded only in the few centers of population, and most of the larger towns have municipal supplies, usually drawn from streams. A few of the dry lowland coast towns have a combination public and private supply dependent upon the direct use of rainfall collected in cisterns. From the public health standpoint this latter method is probably preferable to the ordinary distribution of stream-water through the towns. One customary scheme is to bring the water of the stream through the main street, or principal streets, in an open gutter in the center of the cobble pavement, where it flows through the length or breadth of the community. Each householder takes his water from this ditch in a pail or pan, uses it for his household purposes, and empties the dirty or waste water back into the ditch, so that by the time the water reaches the lower end of the town it is carrying much of the kitchen and household wastes and sewage. This is only one degree more primitive than the American plan of emptying the sewage into a stream so that it pollutes the water supply of a neighboring community, although it does not pollute the next door neighbor's water. Where sewers are provided, which is only in a few towns, the condition is somewhat better, and then probably little raw sewage gets into the public water supply ditch. In either case, the effect on the public health must be severe. In some towns the ancient and picturesque water-carrier is in evidence, driving before him a sturdy burro, on whose back is strapped bags of water. It is hard to imagine that this water is fit to drink, but it is probably safer than the ditch or piped surface water, though not as good as straight home-cistern water. The towns situated in the mountains or near the foothills can sometimes secure a fairly safe mountain stream, and these towns will undoubtedly soon provide themselves with supplies distributed in pipe systems. The difficulties are greater for some of the towns situated in the coast regions and on the plains where surface water is not always available. Wells seem to be rare, but they are, or probably will be, the best solution for the water supplies of many communities in this latter class.

Except in the densely populated town areas, the water supply problem seems to be viewed in about the same light as by the Indians in the jungles. In one instance a rich and well known plantation takes its water for household use and for drinking from an irrigation ditch which receives the surface drainage from several corrals, from chicken yards and hog pens, and into which, above the point where the water is taken, are thrown most of the kitchen and household slops. The water is carried in a dirty pail and "filtered" through a large earthen jar, which removes most of the visible dirt, but which cannot produce water safe for drinking. This water is used by the owner of the plantation and his household. The workmen and their families use the same water, or water from a similar source, unfiltered. There seem to be poorer prospects for good water supplies in the rural regions than in the towns, and since the bulk of the population is still agricultural, the rural water supply problem is even more vital than that of the cities.

SEWERAGE

Only a few of the larger cities have sewers, and in these few, only the houses of the small, wealthier class are connected with them. The outdoor closet or privy is uncommon. Almost universally, a small fenced-in open space back of the house is used for an outdoor closet, and the material deposited on the ground in these open spaces is sun-dried and carried on the wind, washed away by the rains, or consumed by the fowls and pigs. As a matter of fact, these enclosures are much less disagreeable to the American or European than the badly kept dry closets or water-carriage closets in the hotels of the country. Of course the danger to the public health from flies and other insects is great, particularly where all kitchens and houses are entirely open; and the connection between this system of sewage disposal and the hookworm disease is at once apparent. It seems likely that the demand for sewers will be slight in the towns and altogether negligible in the smaller rural communities and on the farms, until a long campaign of education based on the collection of vital statistics, can demonstrate to the people the danger to their health and the health of their children caused by their present method of sewage disposal.

GARBAGE DISPOSAL

There seems to be no serious problem of garbage disposal. The little waste material which might be classified as garbage, is disposed of by feeding to the chickens, pigs, and goats, some of which are kept by nearly all classes, even in the larger towns. As suggested above, the liquid kitchen wastes are sometimes emptied into the open water supply ditch, where one is available.

INSECTS

In some places, particularly in the seacoast towns, the flies are numerous beyond imagination. In these places it is

PLATE II

Public Water Spigot. Gasoline cans are the favorite pails for carrying away the water. This is a modern supply from a mountain source. The open-air town toilet is behind the stalk fence to the right.

difficult to see how anyone can avoid intestinal diseases, since it seems inevitable that the germs be carried broadcast by the flies. Fly-eradication is dependent upon popular education, and the individual desire for cleanliness, both of which seem somewhat remote. Yellow fever, the former scourge, has been practically eliminated largely by isolating and screening patients suffering from the disease. Malaria, however, cannot be controlled except through the eradication of the anopheles mosquito. So many cases of malaria are mild and so many are not recognized as malaria, that the isolation of all patients seems quite impossible. Great strides can be made, however, by the combined effect of isolation and even partial mosquito eradication. Probably comparatively few deaths can be attributed directly to malaria, but the general low health of the people and their susceptibility to other fatal diseases, are no doubt due in some measure to the wide prevalence of malaria in its various forms. In view of the fact that even in some of our more highly developed communities, mosquitoes are still very numerous, one can realize the difficulties in any program for eliminating mosquitoes in a land where they breed the year round, where breeding places abound, and where the individual has become so hardened to the discomfort caused by mosquitoes that they are not willing (nor are they able) to undertake any large project for getting rid of them.

The discomfort caused by many other insects, such as fleas, chiggers, garapatas, and many others, particularly in the rural districts, can scarcely be appreciated, except perhaps by the men who lived in the trenches in France. There can be no doubt that the relation is immediate and direct between insects and many diseases, some of them probably unrecognized.

The hookworm is one of the major causes for debility and, indirectly, for a high death rate. This offers a field for effective work, such as that undertaken by the Rockefeller Foundation. The relation between hookworm, and the method of sewage disposal in outdoor enclosures, as outlined above, is evident.

FOOD

To the American the food in Venezuela and Colombia seems very bad. It is badly cooked and badly seasoned, but, much more important from the public health standpoint, the food and the methods of preparing it are dirty—and oftentimes decayed food is used. Fresh milk is not extensively used except in coffee and for making cheese and butter, because it is almost impossible to keep it. Wherever cows' milk is used for children's food, it is hard to believe that any child can survive. The dirtiness of the workmen and of the utensils used, the activity of the flies and insects, and the total lack of examination of the cows, combine, it would seem, to make all the milk dangerous.

The general impression made by the towns and rural living conditions in these Carribean republics is one of dirt, bad odors, and ill health. On the other hand, the people have ready imagination and great self-respect, and the countries possess wonderful natural resources. It seems reasonable to expect that, with increasing economic improvement and better distribution of wealth, and particularly with increasing education, the peoples of Colombia and Venezuela will set out to secure for themselves greater comfort, better health and longer lives.

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The Symposium on Health Centers, including the papers that were read at the A. P. H. A. Meeting in San Francisco, will be published in the March issue of the JOURNAL.

DETECTION OF MANURAL POLLUTION IN MILK BY THE ANAËROBIC SPORE TEST

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Read before Laboratory Section, American Public Health Association, at San Francisco, Cal., September 15, 1920.

The anaërobic spore test for manurial pollution of milk has certain definite advantages. Total bacterial count is at best an indefinite warning, visible dirt gives no clue to manure in solution, while B. coli depends on temperature and may give false indications. The anaërobic spore test is simple and meets requirements.

THE milk problem may be approached from many angles, but from the consumer's point of view a milk supply should meet three essential requirements: (1) It must be safe. Certification or pasteurization will meet this requirement. (2) It should be reasonable in price. To this end the machinery of production and distribution must be kept as simple as possible. (3) It should be clean. Except for certified milk, cleanliness is still an unsolved problem. This paper concerns itself with the last of these three points, viz., obtaining a clean milk supply. Specifically, it considers the anaërobic spore test as a means for detecting manural pollution in all types of market milk.

HISTORY OF THE METHOD

In a former paper (Weinzirl and Veldee, *Am. Jour. Pub. Health,* 1915, V. 862), attention was called to the possibility of testing milk for manural pollution by detecting the presence of anaërobes. However, the test was named the "*B. sporogenes* test" following the English usage for a similar method. It is quite certain now that several species of anaërobic bacteria are present in cow manure (Weinzirl and Klopfer, unpublished data), hence a more accurate designation of the method is "the anaërobic spore test."

Since the earlier report was published, considerable progress has been made. The results will be given presently.

NECESSITY OF MAKING THE TEST

Apparently the belief is quite general that pollution of milk has reached the vanishing point. That this view is utterly false is shown by our work in the state of Washington. The anaërobic spore test was employed by H. A. Felder and the writer in checking up the twenty producers supplying milk to one of the best dairies in Spokane, Wash. In all, 1088 samples were tested for manure, and more than 25% of them showed excessive pollution. Miss Effie Thompson, then city bacteriologist for Yakima, Wash., examined 105 samples of milk and found 24.1% polluted. Of these samples, 57 were pasteurized milks. One dairy furnishing pasteurized milk showed 44.4% of the samples excessively polluted, while the other dairy selling pasteurized milk showed no pollution. In Seattle (Weinzirl and Veldee, loc. cit.), 98 samples of unpasteurized milk gave 25% polluted, 110 samples of pasteurized milk gave 20% polluted, and 37 samples of certified milk showed no pollution. Obviously manural pollution is far from reaching the vanishing point, and, doubtless Washington does not stand alone in this respect.

Granting, then, that a test for manural pollution is necessary, the question arises

—what method shall be employed? A number of methods are used for this purpose, but it is becoming evident that all of them have serious defects and that they fail at critical points. (1) The total count of bacteria fails because the number present may be due largely to multiplication, or to other factors than manure. (2) The *B. coli* test fails, since this organism may multiply in milk, or it may be killed by pasteurization. (3) The visible dirt test also fails, because it merely indicates the dirt which the dairyman's strainer has allowed to slip through. In case a centrifugal cleaner has been employed, this test will show a perfectly clean milk regardless of the amount of manure it originally contained or the soluble manure retained.

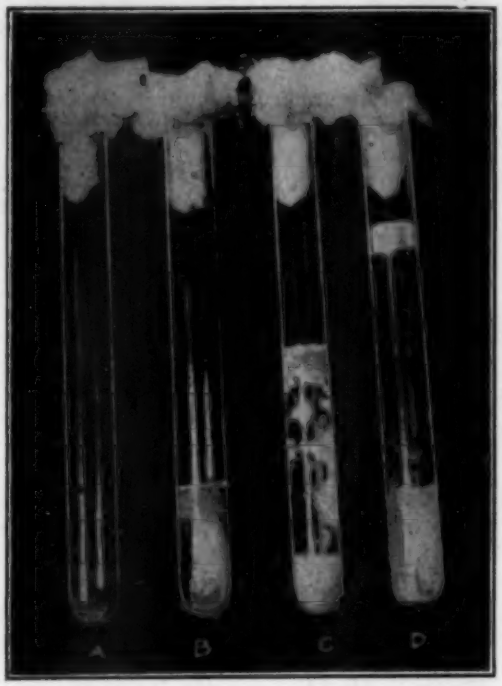
The anaërobic spore test eliminates largely, if not wholly, the defects found in the other methods. The anaërobic spores do not multiply under the conditions for keeping milk, they are not killed by pasteurization, and they cannot be filtered out by any cleaning device.

DESCRIPTION OF AN ANAEROBIC SPORE TEST

The test for anaërobic spores is easily performed. One-half to one cc. of melted paraffine is placed in a 15 mm. test tube which is plugged with cotton and sterilized either by dry or moist heat. By means of a sterile pipette, 5 cc. of the milk under test is placed in each of five tubes containing paraffine. The tubes containing the milk and paraffine are then placed in the Arnold sterilizer and heated to 80° C. for 10 to 15 minutes. This treatment melts the paraffine, which rises to the surface, where it hardens on cooling and forms the anaërobic seal. The heat also expels oxygen absorbed by the milk, thus rendering anaërobosis more complete. All the vegetative bacteria present in the milk are killed by the heat, only the spore forms remaining. The tubes are then incubated for three days at 37° C. If anaërobes are present, gas will be formed, which lifts the paraffine plug in the tube (See Fig. 1.) Two positives out of five tubes condemns the milk as showing excessive pollution.

FIGURE I

Illustrating the Anaërobic Spore Test for Manural Pollution in Milk.



A. Sterile tube containing paraffine.

B. Paraffine on top of the 5cc. of milk.

C. Paraffine raised by gas formed.

D. Paraffine raised nearly to top of tube.

DETERMINATION OF SIZE OF SAMPLE OF MILK

In our earlier work three tubes were used, containing 5, 10 and 15 cc. respectively. Experiments were made by L. R. Thompson and the writer, in which manure was added to sterilized milk. The amount of manure varied from 10 to 200 milligrams per pint of milk. In all, 45 trials were made. These trials showed that 5 cc. samples would generally detect manure when present to the extent of 50 mg. per pint.

Having determined the degree of pol-

lution which could be detected, A. Skibeness and the writer then analyzed 18 samples of cow manure by adding the same to sterilized milk to the extent of 50 mg. per pint. Samples of 1, 5 and 10 cc. of the polluted milk were tested as before. This work showed that the 1 cc. samples were usually negative, and that the 10 cc. samples gave little added information. This gives us, then, the 5 cc. sample.

There still remains the question—how sensitive is the 5 cc. sample? To answer this question, the data obtained from the 18 samples of manure may be tabulated as follows:

TABLE I

Showing sensitiveness of anaërobic spore test when 5 cc. samples of milk are used, the milk being contaminated with 50 mg. of manure per pint.

Sample number of manure	Number of analyses made	Number of analyses positive	Number of analyses negative
1	3	3	0
2	3	2	1
3	3	1	2
4	3	3	0
5	3	2	1
6	3	3	0
7	3	2	1
8	3	1	2
9	3	1	2
10	3	1	2
11	3	1	2
12	3	2	1
13	4	4	0
14	4	3	1
15	4	4	0
16	4	4	0
17	4	4	0
18	4	4	0
Totals	60	45	15
%		75	25

The results tend to show that the test will reveal 75% positives. This result is probably too low, due to the caramelization of the lactose during autoclaving. When lactose was added (Nos. 13 to 18), the sensitiveness was 95.8%.

It should be added that the samples of manure were collected during the autumn, winter and spring, from individual cows in four dairies, and that each sample was analyzed periodically from 3 to 34 days after collection. Apparently the 5 cc. sample is not too sensitive, for it may fail to detect 50 mg. of manure in a pint of milk, or 1 gram in 10 quarts. Surely this amount of manure would be considered excessive by most sanitarians. Still, the test when applied to market milk, will condemn 20-25% of the supply.

THE ANAEROBIC SPORE TEST COMPARED WITH OTHER TESTS

In our earlier work we were naturally curious to determine how the test checked with those commonly employed for detecting manure. Accordingly, Felder and the writer analyzed 570 samples of milk from individual producers as delivered to one of Spokane's dairies. Four methods were employed: (1) Visible dirt, according to the New York standard; (2) *B. coli* (i. e. colon group) present in 1/1000 cc. of milk; (3) The anaërobic spore test as previously defined; (4) Total count of bacteria per cc. The analyses were made during July, August and September, and the results are given in Table II.

It will be observed that in a general way the four tests parallel each other. Since the tests were run on fresh milks direct from the producers, the older tests are employed under the most favorable conditions. The fact that the anaërobic spore test parallels the others would seem to be a strong point in its favor.

However, it is desirable to analyze the data more closely. If we assume (and the assumption appears justified), that a positive test is correct, and a parallel negative result is an error, then these errors may be tabulated. The total count, however, does not lend itself to such analysis. When does a total count indicate manural pollution? Do 100,000 or 1,000,000 or 10,000,000 bacteria indicate manural pollution? No one can say, for the test furnished no direct evidence.

In fact, the total count has very little specific significance.

Apparently, under the conditions of the test experiment, both methods are satisfactory, but each is subject to at least a 5% error.

TABLE II

Giving results of 570 analyses of milk from 20 producers by four methods for determining manural pollution.

Visible Dirt			B. Coli in 0.001 cc				Anaërobic Spores				Total Count
			Positive		Negative		Positive		Negative		
Grade (N. Y.)	No. of Samples	Positives Pct.	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.	Average per cc.
1	66	11.6	0	0	66	11.6	2	0.3	64	11.2	7,000
2	291	51.0	47	8.3	244	42.8	74	13.0	217	38.1	48,000
3	178	31.2	84	14.7	94	16.5	62	10.9	116	20.3	80,000
4	22	3.9	20	3.5	2	0.3	17	3.0	5	0.9	138,000
5	13	2.3	13	2.3	0	0.0	12	2.1	1	0.2	300,000
		100.0	164	28.8	..	71.2	167	29.3	..	70.7	.....

TABLE III

Presenting the errors in percentages for each of the tests for pollution.

Visible Dirt Grade	Visible Dirt Error %	B. Coli Error %	Anaërobic Spores Error %
1	0.3	0.3	0.0
2	13.0	4.7	0.0
3	14.7	0.0	3.8
4	0.0	0.4	0.9
5	0.0	0.0	0.2
—	—	—	—
Totals	28.0	5.4	4.9

The table shows quite plainly, what common sense should have told us, that the visible dirt test is a failure for detecting manural pollution. What the test really indicates is that some dairymen are careless about straining their milk. It affords no real clue as to whether a milk is actually clean and free from soluble manure. Referring again to Table II, it is observed that the test found 35 cases of pollution when it should have discovered 195. Does such a test really merit serious consideration?

The *B. coli* and anaërobic spore tests remain to be analyzed. The former condemns 28.8% and the latter 29.3% of the samples. Actually, however, only 13.2% are condemned by both, thus leaving approximately a 15% error unaccounted for. Referring to the table of errors, the *B. coli* test failed in 5.4% of the samples, while the anaërobic spore test failed in 4.9%. This still leaves approximately a 5% error unanalyzed.

SUMMARY

This study seems to show that the anaërobic spore test is far superior either to the total count or the visible dirt tests as an indicator of manural pollution in milk, and apparently it equals the *B. coli* test for this purpose. This is true only when the tests are made with the advantages equal for all of them. The advantages are rarely equal, however; the total count is subject to many disturbing factors, and is quite useless for this purpose; the visible dirt is readily removed by clarification or even careful filtration, thus rendering this test well nigh useless; *B. coli* multiplies in milk unless the temperature is held down, hence it may falsely indicate pollution; or it is killed by pasteurization when it fails completely. Since the major portion of our milk supply is now pasteurized, the anaërobic spore test must be used if this product is to be checked for pollution.

Finally, the anaërobic spore test possesses the merit of simplicity, requires no special training for its mastery, and is applicable to all kinds of milks. There is no longer any valid excuse for our failing to test milk for pollution, and thereby meeting the third of our requirements—a clean milk supply.

BREAST FEEDING IN THE REDUCTION OF INFANT MORTALITY

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and
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Read before the Joint Meeting of Child Hygiene and Vital Statistics Sections, American Public Health Association, at San Francisco Cal., September 15, 1920.

These authors do not absolve their brother physicians from responsibility in the high infant mortality through bottle feeding and note that medical schools spend hours teaching artificial feeding against a casual attitude in discussing maternal nursing. The story is told of the Minneapolis demonstration which helped reduce infant mortality there from 81 to 65.

When one realizes that in many of our large cities 100 infants die during the first year of life for every thousand born, and that this perfectly unthinkable situation is accepted with equanimity by many sanitarians and laymen, one is forced to the unpleasant conclusion, that some very important element is lacking in the role that the physician plays, both as citizen and humanitarian. So many statistics have been compiled bearing on the question of infant mortality, that it is perfectly justifiable to present the conclusions, that can be drawn from them without including in these conclusions the figures upon which they are based. No one can attack on account of its extravagance the contention that the death rate among artificially fed infants is approximately six times as high as among the breast fed. Granting this, it is very difficult to comprehend the modern tendency for bottle feeding, and at times even more difficult to realize why so much opposition is encountered when an effort is made to correct so deplorable a situation. It may be appropriate to analyze a few of the reasons responsible for the large number of babies, that are not given the tremendous advantage as to health and resistance always allied with maternal nursing. As deplorable as it may seem, the medical profession itself is probably more at fault in this connection than any other group, and among physicians in the highly specialized branches of obstetrics and pediatrics are found the worst offenders.

In education alone can be found the keynote whereby this situation can be corrected. In a consideration of this phase of the question, too much stress cannot be laid upon the importance of properly handling the problem in the medical school. The hours and hours that are given over to the teaching of artificial feeding, which even by the most intensive methods can never be successful unless they are followed by a tremendous amount of experience, stand out in striking contrast to the casual attitude, which is so frequently taken in discussing with students the advantages of maternal nursing. Men are graduated from our best universities who have never even seen a mother nurse her baby, and as far as having a knowledge of some of the difficulties of maternal nursing is concerned, they are one very potent cause of the so frequently unassailable position of the proverbial grandmother.

Several years ago in an effort to determine the percentage of mothers that

were nursing their infants, a questionnaire was sent out by one of us (J. P. Sedgwick) to a large number of medical men in various parts of the country. For practical purposes, there was not one in this entire group who had not striven to procure for his own children the advantage of breast feeding. About 80% of these mothers had succeeded in nursing an infant three months or longer. Nothing can be more striking evidence of the general attitude of the medical profession towards the subject of maternal nursing than these figures.

Granting the contention, which one would hardly dare to question in view of the data at our disposal, that the infant mortality is about six times as great among artifically fed infants during the first year of life as among the breast fed, how can the knowledge be made available to the laity, and its importance so emphasized that artificial feeding may be reduced to an extreme minimum.

During the past two years the problem has been attacked in Minneapolis in an effort to determine what could be accomplished in a large community, if all available agencies were utilized to get coöperation in every home. There was formed for this purpose what was called the Breast Feeding Investigation Bureau of the Department of Pediatrics of the University of Minnesota. When one realizes the enormous number of ramifications that must be considered in outlining a piece of work of this kind, it is easy to understand why absolute support of the entire medical profession is essential. Every physician in the city was written to, and was invited to visit the University, where the purpose of the Bureau was carefully explained. When it was not possible to communicate with the doctors in this way, representatives were sent to explain to them the details of the problem. Special emphasis was laid upon the fact that no physician engaged in private practice would be employed in connection with the work. A card index of the physicians was maintained, on which any special desire of the doctor was recorded. If he wished his patients to be seen by the representatives of the Bureau, they were sent, or if he preferred to carry out the directions of the Bureau through his own office, the problem was attacked in this manner. After several months, a representative was again sent to all the physicians, asking whether the work of the Bureau was embarrassing them in any way, and urging suggestions which would under all circumstances prevent such embarrassment. The Municipal Health Department coöperated in every way, and the Infant Welfare Society gathered information wherever it was available. The support of the press was essential and was most heartily given. The expense for the year's study was about $7,000 which was appropriated partly by the Graduate School of the University, partly by the "War Chest" and the balance was subscribed by individuals. The routine method followed by the Breast Feeding Investigation Bureau may for convenience be divided into three parts.

First. Reports were received daily from the Municipal Health Department giving the names and addresses of all newborn infants with the name of the attending physician or midwife. These data were immediately entered on cards for filing and reference.

Second. Every mother was visited usually within the first three weeks by a social service worker, at which time the so called "First Information" was obtained. This consisted of a brief history of the other children in the family, how long each one had been breast fed, and if the breast was discontinued before the ninth month, when and why. The same history was elicited concerning the newborn infant. This was entered upon a filing card, and if any difficulty in nursing was apparent, the Bureau immediately communicated with

the attending physician. With his permission the patient was visited promptly by a nurse and an effort made to correct existing conditions. At this visit the mother was informed that she would receive cards from the Bureau at regular intervals during the first nine months of her baby's life, stress being laid upon the importance of properly and promptly returning these cards.

Third. When the baby was six weeks of age and every month thereafter for nine months, there was mailed to the mother a card upon which was the following series of questions:

1. Is your baby still breast fed?
2. How often do you feed it?
3. Does it receive the breast only?
4. Are you having any difficulty nursing the baby?
5. If so, what?
6. If it is not breast fed, when and why did you stop? State how long the baby was breast fed.

A second call was made by the visiting nurse when the baby was two months of age. It was at this period that the most difficulty was encountered and that most mothers were inclined to be discouraged, so that tact and logic were frequently necessary to prevent weaning.

Only by intimate contact with a problem of this type can its difficulties be appreciated. In the first place one has the natural opposition of the medical profession that an effort is being made to undermine the position held in the family, that by subterfuge or otherwise sooner or later some hint will be dropped whereby the prestige enjoyed will be destroyed and the patient lost. When the physician considers further the great inability on the part of nurses to realize that there may be several excellent methods of solving a medical dilemma, and that their original teaching is not infallible, it can be more readily understood why he is so often skeptical.

Added to this is the large number of men who are poorly trained and who realizing their lack of knowledge are adverse to any agency entering the home, that may be in a position to realize their shortcomings. The public itself always assumes a questionable attitude toward a movement of this type. As odd as it may seem there is something about the so-called sanctity of the home, violation of which is always suspected by the laity if some new public health measure is suggested. Add to this suggestion a provision that affects the attitude of the mother toward her child, irrespective of how altruistic the motive may be, and there rises up in the hearts of many people an immediate objection, that can only be overcome by a tremendous amount of educational propaganda. This necessitates absolutely on the part of the nurses, who are carrying on the work, a degree of tact and diplomacy that is very difficult to find even in people who are specially trained for this type of problem. One trait in these individuals is indispensable. They must have a human interest that insures thorough loyalty at all times. Nothing can be less interesting day after day, week after week, than visiting mothers and trying to impress upon them the tremendous value of the problem. It is a strange fact but true, that human nature is adverse to taking expert advice at any time, and if this is given without a recompense, which, after all, is the only method the average layman has of measuring its value, there is always a great disposition to reject it and accept the proferred suggestions of a hundred absurdly ignorant neighbors.

It is interesting to note in the first place the class of women that have interested themselves in the work, and in the second place to analyze the tremendous enthusiasm that they have developed. One could quote from numerous communications showing the per-

severance and devotion that were necessary to accomplish results, and at the same time formulate an idea of the spirit and determination behind the efforts of these workers. As difficult as a problem of this sort is to start, and as many as the obstacles are that must be overcome in the beginning, just so contagious is the change in attitude which is subsequently developed when the results can be seen. Physician and layman alike are willing to coöperate when they realize how many lives can be saved, but in a type of work that requires months and even years for a tangible effect to be visible, there is always a corresponding delay in developing a proper enthusiasm.

The definite purpose of the Breast Feeding Investigation Bureau was to reach the mother of every newborn baby in Minneapolis, and after the confidence of the mother was secured, to educate her first in the value of breast feeding and, second, in the means whereby it could be continued. These methods were very simple. They consisted almost entirely in making continuous demands at regular intervals on the breasts, and in impressing upon the mothers the importance of properly emptying the breasts, particularly in cases where the babies were not vigorous enough to nurse properly on account of prematurity or some asthenic condition. This phase of the problem cannot be too strongly stressed. The failure to use the mammary gland regularly and completely is unquestionably the most common and most potent cause for its failure to function. It is not within the scope of this paper to enter into all the details of the technique and difficulties of breast feeding, but they play a most important part in insuring its success and should be carefully studied and understood by anyone entering the field of preventive medicine.

As uninteresting as figures are, they are the only means at our disposal for studying this very fascinating problem. Analyzing the results of the investigation of the breast feeding of babies born in Minneapolis during the months of January, February, March, April and May, 1919, the following statistics are available.

1472 (72%) of the 2022 babies still under observation at the end of the ninth month were on the breast—leaving 27% of those babies on artificial food.

1631 (77%) of the 2113 babies still under observation at the end of the eighth month were on the breast—leaving 22% of those babies on artificial food.

1810 (80%) of the 2240 babies still under observation at the end of the seventh month were on the breast—leaving 19% of those babies on artificial food.

1992 (84%) of the 2355 babies still under observation at the end of the sixth month were on the breast—leaving 15% of those babies on artificial food.

2090 (86%) of the 2412 babies still under observation at the end of the fifth month were on the breast—leaving 13% of those babies on artificial food.

2250 (89%) of the 2505 babies still under observation at the end of the fourth month were on the breast—leaving 10% of those babies on artificial food.

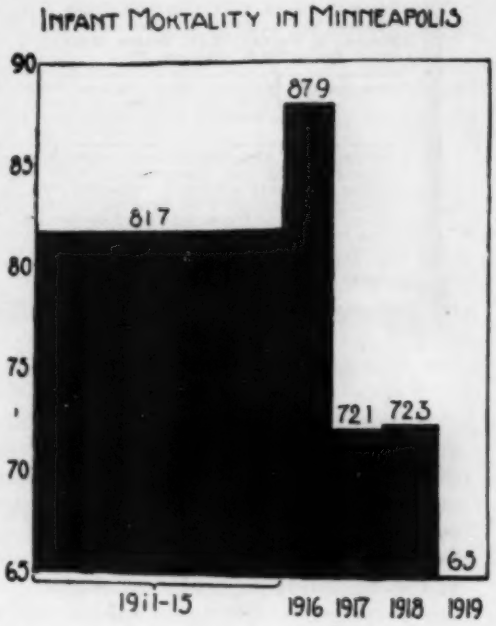
2490 (93%) of the 2674 babies still under observation at the end of the third month were on the breast—leaving 6% of those babies on artificial food.

2761 (96%) of the 2847 babies still under observation at the end of the second month were on the breast—leaving 3% of those babies on artificial food.

Naturally one must look for some tangible result from such startling figures, and that can very readily be found if the mortality rate of infants during the first year is studied. From 1911-1915 the infant mortality rate in Minneapolis was 81.7, in 1916, 87.9; in 1917,

72.1; in 1918, 72.3, and in 1919, the first year in which an intensive breast feeding campaign was carried out, the rate was reduced to 65. It is not necessary further to comment upon these facts. In a city with marked extremes of climate, the infant mortality has been reduced to a figure, which in view of what is found in most of our large cities, seems almost unbelievable. This work has now left the experimental stage and has been placed under the supervision of the Infant Welfare Society of Minneapolis, so that it may become a permanent institution.

When one considers the advances that have been made in public health work during the past two decades, it is, to say the least, strange that a more consistent effort has not been made to reduce the ravages among infants during the first year. Omitting the fairly large number of stillborn infants, no other cause plays so great a role as the diarrheal diseases, essentially due to artificial feeding. Granting that remarkable strides have been made in improving the character of the most common artificial food, cow's milk, one is struck by the fact that so little attention has been paid to the importance of so educating the public, that maternal nursing may be everywhere popularized and the empiricism of artificial feeding given proper condemnation. Public health agencies in the past have been inclined to delegate the responsibility of such problems to Infant Welfare Societies, and to neglect a duty which belongs definitely in their domain. Were any of the communicable diseases to claim a toll at all comparable to that seen during the first year of life, every effort would be made by our health departments to combat the ravages of the individual disease, but in this all-important work they are satisfied to assume an attitude of silent complacency. It may seem extravagant, but



well within the realm of reason to hope that in the future any measure tending to the reduction of infant mortality may not only be within the scope of Infant Welfare and Child Hygiene Societies, but a truly recognized function of the state.

□

Take Notice that the 1921 Meeting of the A. P. H. A. is set for November 14-18 in New York City. It will be a Great Occasion, the Fiftieth Annual Meeting, and Dr. Stephen Smith, the first President, promises to be there.

EDITORIAL SECTION

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THE MAN OF GOOD SENSE WILL NOT HESITATE

Before the introduction of vaccination, smallpox was one of the "children's diseases," and was as prevalent as measles is now. Each year hundreds of thousands died of smallpox, and of those who recovered, many were maimed or disfigured for life. Even at the present day, especially in the Orient, where vaccination is not generally practiced, smallpox still takes a toll of thousands of lives annually. In China, for example, smallpox is still a very common cause of the blindness so prevalent there.

Experience has again and again shown that smallpox resumes its former epidemic character whenever and wherever vaccination is habitually neglected, for through such neglect there results an accumulation of susceptible individuals who contract the disease and spread it through the community.

To every unprejudiced observer the evidence is overwhelming that there is only one effective procedure whereby to combat smallpox, and that is compulsory vaccination. No amount of public and individual sanitation has any appreciable effect in preventing the spread of this ancient scourge.

The anti-vaccinationist is a menace to the community, and no amount of camouflage on his part should prevent the people from recognizing him as such.

The dangers of vaccination are largely imaginary, and the benefits of the procedure are striking. The menace of smallpox is real and the effects of the scourge are terrible.

The man of good sense will not hesitate which to choose.

Hugh S. Cumming.

SHALL IT BE I OR Y?

At the recent centennial celebration of the Medical College of the University of Cincinnati one of the principal addresses was made by Professor W. T. Sedgwick, who as our readers know has long been interested in public health science and public health education. Taking for his subject "Modern Medicine and

the Public Health" Professor Sedgwick reminded his audience that by a remarkable coincidence the hundredth anniversary of the University of Cincinnati Medical College was the fiftieth of the great Medical Reformation in the United States, begun as this was in 1870 by President Eliot of Harvard, whom the speaker characterized as the "Martin Luther" of this latter day movement.

After tracing briefly the development of modern medicine and modern medical education and criticising the present medical curriculum for its want of proper teaching of public health subjects, Dr. Sedgwick urged that this curriculum, which he compared in rigidity with the letter I, should be converted into the letter Y, the first two years remaining as now but the last two diverging from these as a base and leading, one arm to degree of M. D. and the other to the degree of D. P. H. He pointed out that by its recent action in establishing the degree of Doctor of Medical Sciences (D. M. S.) the Harvard Medical School has taken "a long step in the right direction," but he added, "The degree of Doctor of Medical Sciences will not, however, be either sought for or valued as would the degree of Doctor in Public Health by those engaging in Public Health practice. For them it will be much as it would be for those about to practice Medicine provided with the degree of D. M. S. instead of M. D."

Professor Sedgwick of course favors special schools of Public Health parallel with, but independent of, Medical Schools, but he apparently is not sanguine of any rapid multiplication of such schools, or of any output from them which for years to come will meet the urgent need for well trained Public Health officials. Accordingly he turns to the Medical Schools, in which no doubt there is always a certain percentage of young men who by the end of their second year of medical study would willingly turn toward Public Health if the way were open for a degree at the end of their course comparable with the degree of Doctor of Medicine, and particularly if they felt reasonably assured of careers of immediate and permanent importance and remuneration.

Doubtless the ideal arrangement is the establishment of special and separate Schools of Public Health closely affiliated with Medical Schools and Engineering Schools, but it is too much to hope that such schools may be established in sufficient abundance to meet the needs of the times. Meanwhile, it would seem entirely possible for Medical Schools to offer at a minimum cost Public Health instruction to such of their students as have already completed the basic first two years. Only a few additional instructors would be needed since a good deal of the necessary work, such for example as that in communicable diseases, might readily be shared with the third and fourth year medical students. The whole subject is important and urgent, and it is greatly to be hoped that American Medical Schools will, as Professor Sedgwick invites them to do, rise to the "golden opportunity" which he believes to be theirs.

R.

FOOD AND HEALTH

For the student and guardian of the public health, the center of gravity of the food problem has shifted from sanitation to nutrition. Broadly speaking the food supply has been made safe and there now remains the larger problem of making it so fully adequate as to ensure for all of our people the best possible condition of nutrition and through this the highest state of health and the greatest possible vigor and ability to resist disease.

Education of the public in the knowledge of food values and the principles of nutrition is not the function of the health officer alone but he should be prepared to do his part; and appreciating the importance of good nutrition, he will the more readily and effectively guide and support the teaching of food values and good food habits by public health nurses and other available agencies.

So long as the relations of food to health were conceived only or chiefly in terms of the possibly injurious effects of adulterated food, the matter was rightly regarded as of somewhat subordinate importance. The food adulterations found by the chemist were usually such as to do injury to the pocket-book rather than to the health of the consumer. And when the food chemist essayed to enter the field of nutrition he had, until quite recently, to face the embarrassing fact that rations made up of pure substances representing all the known constituents of food never sufficed for the permanent nourishment of experimental animals—and the purer the isolated proteins, fats, carbohydrates and salts entering into such a food mixture the more certainly and promptly would nutrition fail.

Chiefly as the result of the work of Hopkins in England and of Osborne, Mendel, McCollum and Hess in this country, we now know that an adequate natural food supply furnishes, and that normal nutrition requires in addition to the previously known organic and mineral foodstuffs, a group of substances until recently quite unknown and even yet not chemically identified, the so-called accessory factors, food hormones, or vitamins of which we now recognize three types often identified as Vitamin A, B, or C.

It is now known that the vitamins, like certain of the mineral elements, are very unevenly distributed among staple articles of food and that a food supply may be adequate to satisfy the appetite and the palate and yet furnish too little of one or more of the mineral elements and vitamins. A food supply thus unbalanced may lead directly to one of the so-called deficiency diseases or (probably more often) may pave the way for infectious disease by lowering the vigor and diminishing the ability of the individual to cope with infections.

The relation of the food supply to the public health thus appears, through this newer knowledge of nutrition, in a much more positive and commanding light. Recognizing this the American Public Health Association appointed in 1917 a Committee on Nutritional Problems, whose third annual report appears elsewhere in this issue as a part of the proceedings of the San Francisco meeting. This short report should be read in full as it is too concentrated to permit of adequate summary in an editorial.

The Committee recognizes the importance of the vitamins to health even under conditions in which no cases of deficiency diseases appear.

The richness of milk in the "A" vitamin, as also in calcium and in proteins well adapted to supplement those of the cereal grains, lends new force to the adage that "the dietary should be built around bread and milk." It suggests also a reëxamination of the respective merits of the beef animal and the dairy cow as transformers of food for man's use from the joint standpoint of food economics and of adequate nutrition and health. The report of the Committee on Nutritional Problems together with the findings which they quote from the Committee on Food and Nutrition of the National Research Council make it perfectly plain that from the points of view both of economics and of health there is good reason for a shifting of emphasis from meat to milk in the American food supply and in the individual dietary. No fear need be entertained as to the ability of production to keep pace with an increased demand for milk, because with present possibilities in the line of condensed and dried milks, it is evident that not only the milk of the present dairy areas can be brought into human consumption, but that milk can be produced wherever cattle can thrive, and can be sent to the consumer if not in the original fluid, then in condensed or dried form.

In the report of last year the Committee expressed its conviction that an increased production and consumption of milk offers the best single means for the suppression of pellagra in the South, and there is the best of evidence, both from the feeding of laboratory animals and in human experience, for the belief

that an increased consumption of milk in its various forms, even though accompanied by a decrease in the consumption of meat will redound to the decided benefit of the public health, through the betterment of individual vigor and ability to resist disease.

BOOKS AND REPORTS REVIEWED

The Community Health Problem. *Athel Campbell Burnham, M. D. New York: The Macmillan Company. Pp. 149. 1920. Price, $1.60.*

Out of the pioneer work in general sanitation and the protection of public health during the last two or three decades have come two modern points of emphasis in current health work: One, the conception of disease control and health control is in large part an individual problem—a problem of personal hygiene; the other, a growing appreciation of the fundamental importance of the community unit as the most effective physical basis for constructive health activities. Incident to this latter conception, we have seen the wide development of community health programs, health centers, health stations, community unit experiments, in rural districts, small towns and sections of large cities.

In the light of the growth of community consciousness with respect to our obligations for disease control, this book of Dr. Burnham's on "The Community Health Problem" is timely. Dr. Burnham's small volume is designed for semi-popular reading and instruction, as well as for the orientation of lay and professional field workers. After discussing in a suggestive if not exhaustive manner general problems such as "Sickness As a Cause of Poverty," "The Private Physician and Community Health," etc., the author devotes several chapters to such specific problems as "The Public Health Nurse," "Industrial Medicine," "Health Centers," "Tuberculosis," "Social Hygiene," etc.

The reader will find "The Community Health Problem" distinctively "modern," both in social point of view and in its background of up-to-date information. Chapters on "Endowed Health Demonstrations," "Health Insurance," "State Medicine," etc., present these subjects with a keen appreciation of the social and economic values involved, the discussion being appropriately illustrated by data from the most recent published reports of such current studies and activities as the Rockefeller Foundation health campaigns, the Red Cross peace-time health experience, the Framingham Community Health and Tuberculosis Demonstration, the Cincinnati Social Unit Experiment, etc.

The book also contains a reference list of recent health publications, and is reasonably well indexed. It may be recommended to those seeking a general, easily readable review of the modern health problem.

DONALD B. ARMSTRONG, M. D.

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The Link Between the Practitioner and the Laboratory. *Cavendish Fletcher and Hugh McLean. New York: Paul B. Hoeber, 1920. Pp. 91. Price, $1.50.*

This is an English publication dealing with technical matters wholly applicable to American practice. The authors, pathologists of wide experience, speak of it modestly as "a mere index." The medical man who values the aid which an efficient clinical laboratory can give him will be delighted to have this little volume in his desk within easy reach.

It is the arrangement of the material which makes it particularly practical. The initial chapter contains an alphabetical list of diseases, with directions for laboratory requirements. It states briefly what material is to be obtained, how and where to obtain it, and how to prepare it for shipment. It also gives the minimum time required before a report can be rendered.

In giving the directions, the physician

receives some valuable suggestions on the differential diagnosis of the suspected case. For instance, under "Abscesses" directions are given for the collection of the exudate as well as for the collection of urine, thus warning the physician of the probability of diabetes. The arrangement is particularly suited to the physician who wishes to obtain all the laboratory aid he can on any particular case and who needs to know how to go about it without having to consult various reference books. The rest of the booklet deals with directions for the collection and shipment of blood, urine, tissues, throat cultures, milk and water samples.

ARTHUR LEDERER, M. D.

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Beginning in January, 1921, what have been heretofore sanitation numbers of the Tropical Diseases Bulletin will be published as "Sanitation Supplements." These are obtainable from the Tropical Diseases Bureau, 23, Endsleigh Gardens, London, N. W. 1, England, at the rate of 7/6 per annum. This price covers three Sanitation Supplements which will form an independent volume of 150 to 200 pages with index.

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CONVENTIONS, CONFERENCES, MEETINGS

February 1, New York City, New York Tuberculosis Association.

February 1-3, Toronto, Can., Engineering Institute of Canada.

February 2-3, Society headquarters, Toronto, Ont., Central Council of the Canadian Red Cross Society.

February 9, Jacksonville, Fla., Florida Tuberculosis Association.

February 10, Colorado Springs, Colo., Colorado State Nurses' Association.

February 14-16, Hotel Astor, New York City, National Civic Federation.

February 24-26, Atlantic City, N. J., American School Hygiene Association.

February 25-26, Trenton, N. J., Annual Conference of State and Local Health Officials of New Jersey.

February 28, Cheyenne, Wyo., Wyoming Public Health Association.

February —, Portland, Ore., Oregon Tuberculosis Association.

February —, Manila, P. I., Philippine Islands Medical Association.

February —, Austin, Texas, Texas Public Health Association.

March, 1st week, Concord, N. H., New Hampshire Health Officers' School of Instruction and Health Conference.

March 7-9, Chicago, Ill., Association of American Medical Colleges.

March 7-9, Chicago, Ill., Annual Congress on Medical Education and Licensure.

March 7-9, Chicago, Ill., Federation of State Medical Boards of the United States.

March 7-10, Chicago, Ill., Midwinter Conference of the American Medical Association.

April 5, Nashville, Tenn., State Medical Association of Tennessee.

April 5, Hackensack, N. J., New Jersey State Nurses' Association.

April 12, Clarksburg, W. Va., West Virginia Health Officers' Conference.

April 19-20, Columbia, S. C., South Carolina Medical Association.

April 19-21, Montgomery, Ala., Medical Association of the State of Alabama.

April 19-21, New Orleans, La., Louisiana State Medical Association.

April 25, Pinehurst, N. C., North Carolina State Health Officers' Association.

April 28, Boston, Mass., Massachusetts Association of Boards of Health.

June 3-5, Boston, Mass., Conference of State and Provincial Health Authorities of North America.

June 6-10, Boston, Mass., American Medical Association.

November 14-18, New York City, AMERICAN PUBLIC HEALTH ASSOCIATION.

EMPLOYMENT BUREAU

HELP WANTED

Help wanted announcements will be carried free in this column until further notice. Copy goes to the printer on the 10th of each month for publication on the 20th. Mail to Boston office as early as possible.

In answering keyed advertisements, please mail replies separately to editorial office in Boston, Mass. In replying give age, professional training, salary requirements, previous positions held and three or more references.

Wanted: Full time medical assistant health officer to do medical examination of school children and direct public health education in Yellowstone county, Montana. Address Health Department, Billings, Montana.

Wanted: Laboratory technician trained in bacteriological examination of milk and water. Address Health Department, Billings, Montana.

Wanted: Trained dairy inspector. Address Health Department, Billings, Montana.

Wanted: Bacteriologist for city health department, must be an all-round laboratory man and have experience in dairy and milk work. Address City Health Officer, Charlotte, N. C.

Wanted: Assistant physician in hospital for communicable diseases. Good opportunity to become proficient in laryngeal intubation. Salary $1,200, with maintenance. Under Civil Service. Apply to Commissioner of Health, Baltimore, Md.

Wanted: Laboratory technician for general routine work in State Health Laboratory. Address: Laboratory, State Board of Health, Louisville, Ky.

The Division of Health, St. Louis, Mo., is in need of an assistant bacteriologist, man or woman, salary $2,400 per annum. Reference required. Apply to Health Commissioner, Room 3, Municipal Courts Bldg., giving experience.

Wanted: Medical graduate, qualified to take charge growing health department laboratory and dispensary work including V. D. Clinic. Salary $2,400. State training and experience. Also nurse for Child Welfare work. Salary $1,500. Address R. W. Garnett, M. D., Health Officer, Danville, Va.

Wanted: Director of bureau of chemistry and food in health department, preferably one with some experience in the executive work of such a bureau. Address No. 426, J. H. C., care of this Journal, Boston, address.

POSITIONS WANTED

Position wanted announcements will henceforth be carried in this column. The charge is $2 per insertion. Copy should be received at this office by the 10th of the month.

Wanted: By a graduate in Public Health, position as Health and Sanitation Officer or a position as Chemist and Bacteriologist in a Public Health Laboratory. Seven years of experience in Public Health work. Address C, care of this Journal, Boston address.

Wanted: Appointment as assistant to Medical Officer of Health, or take charge of a department in a town not large enough for full time Medical Officer of Health. In such a position am capable of discharging the duties of epidemiologist, bacteriologist, statistician, sanitary inspector and secretary. Am at present discharging such duties and could give first class recommendations from present employers. Would prefer a Western appointment. Thoroughly alive to all up-to-date Public Health movements. Address replies to X. Y. Z., care of this Journal, Boston address.

Bacteriologist, eight years' experience in Public Health laboratory, wants position in state or city laboratory. Thoroughly experienced in general bacteriological methods, including the manufacture of vaccines and serums. Capable of administration. Minimum salary $2,100 per year. Address M. R. M., care of this Journal, Boston address.

ASSOCIATION NEWS

A. P. H. A. PROGRAM REGULATIONS

The Central Committee on Programs, composed of all section program officers, has adopted the following program regulations:

1. All papers accepted must deal with new information or with new viewpoints. A "rehash" is not desirable. Those knowing of new work in public health are urged to inform the proper program officer.

2. Offers of papers can be considered only when accompanied by a 200-word abstract or by a manuscript.

3. To avoid undue duplication of speakers or subjects, all speakers are requested to notify all program officers involved in cases where papers are being offered to or invited by more than one section.

4. More than one paper per speaker shall be authorized only by a formal vote of the Central Committee on Programs.

5. Papers shall be limited to 15 minutes; that is, approximately 1,800 to 2,500 words. Laboratory papers are limited by constitution to 10 minutes. Discussions receive 5 minutes.

6. Papers shall not be listed for reading in the absence of the author.

7. Program committees will meet about March 11, 1921, and again in June to vote upon papers offered. Speakers will be notified AFTER THESE MEETINGS concerning committee decisions.

8. Exceptions to the foregoing rules shall be authorized only by a vote of the Central Committee on Programs, composed of all section program officers.

In order to promote programs of the highest merit for the semi-centennial of the Association, to be held in November, 1921, the program officers of the various sections met in Washington, D. C., on December 8, 1920, and adopted the regulations which are printed herewith.

One finds two types of programs in scientific conventions. The one extreme is represented by a nicely oiled steam roller system, under which papers are accepted by invitation only, in accordance with a well-defined plan outlined in advance. If a program of this type is prepared by an efficient committee, it is likely to be pleasing to the audience. However, it is discouraging to initiative and fosters a reactionary spirit.

The other extreme type is the unplanned program, in which practically all papers are accepted that have been offered. This type leaves a happy group of budding authors, but usually a dissatisfied audience. There is sure to be overcrowding of programs, lack of time for discussion and a number of papers that do not add materially to the sum total of our knowledge.

The Central Committee on Programs in adopting regulations has tried to steer between the two extremes. It will endeavor to give every author a hearing who has a real message to deliver, and asks for the privilege. On the other hand, the committee will insist that the rights of the listeners be given due consideration.

The first of the rules printed herewith aims to avoid what is popularly known as "ancient history." Teachers, laboratory heads and others, knowing of important original work, are urged to send in suggestions.

The second rule requires a 200-word abstract of papers, in order to enable program officers to make their selections intelligently. Incidentally, it is hoped that this procedure will discourage the custom of writing papers on the train during the last hundred miles of the trip to the convention.

It frequently happens that excellent papers are offered which cannot be accepted because all of the available places on the program have already been assigned. Occasionally no time remains for discussion. There is always pressure for space on the programs of the Association, and this situation will be aggravated at the 1921 meeting. Rules three, four and five are designed with a view to conserving space on the program.

The decision not to list papers for read-

ing *in absentia* will meet with the approval of all who have given the subject careful thought. At the California meetings it happened in more than one session that not one of the scheduled speakers appeared in person. If an audience of 50 or 100 or 1,000 persons come to hear a speaker, it is only fair that the speaker should be present to defend his paper and to answer questions. Again, when an excess of papers is offered, surely those speakers should receive preference who will be present in person. In those cases where an individual has a vital communication to present, and cannot be present in person, it is suggested that the communication be forwarded to the chairman of the section for presentation, if time is available after the listed papers have been read. In the case of joint authorship, only one of the authors need be present.

As action on programs will be taken by full committees, program chairmen will not be able to give immediate response to all authors of papers. The first committee action on papers will be taken about the middle of March, 1921, and invitations to present papers will be sent out thereafter. The Central Committee will again act in June, and it is probable that most of the programs will be practically completed about that time.

Following is a list* of program officers to whom correspondence should be addressed:

Laboratory: Maj. A. Parker Hitchens, Army Medical School, Washington, D. C.

Public Health Administration: Dr. H. F. Vaughan, City Board of Health, Detroit, Mich.

Vital Statistics: Dr. Henry B. Hemenway, Department of Public Health, Springfield, Ill.

Sociological: It is possible that these papers will be included in other sections.

Sanitary Engineering: Mr. Theodore Horton, State Department of Health, Albany, N. Y.

Industrial Hygiene: Dr. W. A. Sawyer, 343 State street, Rochester, N. Y.

Food and Drugs: Mr. R. E. Doolittle, 1625 Transportation Building, Chicago, Ill.

General Sessions: Dr. M. P. Ravenel, University of Missouri, Columbia, Mo.

In conclusion, it is desired again to emphasize that while some of the foregoing regulations may seem stringent, they do not proceed from a spirit of indifference to the rights or feelings of the individual. Far from becoming a machine, the Association wishes to be as helpful as possible to every individual member, and suggestions will always be welcome and will receive the most careful consideration.

*These names are starred in the list which is published meeting on page III of the advertising section of the JOURNAL.

EXECUTIVE COMMITTEE MEETING

The executive committee of the association met in Washington December 9, 1920, and it was voted that the next annual meeting of the association be held in New York City. The date selected was the week of November 14, 1921, subject to revision by the President upon local representation.

The executive committee favored House Resolution 33, recommending a survey of Federal health activities, but felt it best to take no action on the Sheppard-Towner bill for state departments of maternity and infant welfare or the Fess-Capper bill for physical education.

It was voted to appoint a committee to coöperate with the National Education Association and similar bodies for working out standards for the teaching of hygiene in the schools.

The Secretary and Treasurer were authorized to organize a committee on finance to consider revenue-producing activities, recommend budgets and be otherwise active with regard to problems of finance of the association.

THIRD ANNUAL REPORT, COMMITTEE ON NUTRITIONAL PROBLEMS

Presented to Section on Food and Drugs, American Public Health Association, at San Francisco, Cal., September 16, 1920.

During the past year research upon nutritional problems has continued very active, especially in connection with the vitamines and the relations of these and other food constituents to the so-called deficiency diseases. A very important advance in the unification of our knowledge of the vitamines and its application to the problems of human nutrition and health in a sane and well-balanced manner, has been registered in the publication by His Majesty's Stationery Office of the Special Report of the Medical Research Committee of the (British) National Health Insurance Commission, entitled, Great Britain National Health Insurance Medical Joint Committee Research Committee, Special Report Series No. 38 "Report on the Present State of Knowledge concerning Accessory Food Factors (Vitamines)." Conservatively and with commendable scientific restraint (with the possible exception of too ready an acceptance of the theory that rickets is due to a lack of fat soluble vitamine) this British Committee of which Professor Hopkins is chairman, sets forth the more important bearings of the vitamine content of the food supply upon the public health in terms addressed directly to British readers, but which are almost equally applicable here. Without attempting to summarize this report, or to abstract the data which it presents, the following paragraphs may well be quoted:

"The practical importance of the facts will not be understood until it is recognized that a deficiency in food, which when complete or extreme leads to actual disease, may, when only relative, be responsible for ill health of a vague but still important kind" . . .

"It is of the greatest importance to emphasize the fact that a deficiency of an accessory factor may be of a much smaller order than that necessary to produce the typical syndrome of the disease usually associated with the deficiency, but may nevertheless be sufficient to induce a distinct failure of nutrition and health. This is particularly true in the case of young children. Fortunately in this country our national dietary is so varied even amongst the poor as practically to preclude an absolute deficiency of any particular factor arising, so that there is little fear of the incidence of a typical deficiency disease, such as beriberi. On the other hand, there is a very real danger that the improperly balanced dietaries consumed in many cases may lead to a partial deficiency of one or more of the necessary substances, if not of other components as well. The influence of these partial deficiencies, even when relatively slight, may be extremely serious when they occur in early life, and, if we may judge from the experiments on animals, an adequate supply of these indispensable dietary components in later life may completely fail to make good the damage caused by the deficiencies in youth."

Speaking of partial deficiencies of vitamines in dietaries of adults:

"One point of practical importance concerned with the slow development of these deficiency diseases is the certainty that long before the symptoms of the acute disease can be diagnosed there will be a general, ill-defined departure from good health which may defy diagnosis, but which will seriously lower the well-being and efficiency of the individual. These considerations are especially important in cases where isolated cases of pronounced deficiency disease are diagnosed among large communities of people, as in institutions, camps, etc. So small an incidence of the disease may be regarded as unimportant, but in reality it is an indication that a widespread danger exists and that the health of a much larger number of persons is being affected by the same cause, although, owing to greater natural resistance or other causes, severe symptoms may not for the moment have supervened."

Both upon the exact causes and significance of the deficiency diseases and upon the nature and occurrence of the vitamines and their behavior under such treatments as are involved in industrial and household methods of preparing and preserving foods, investigations are now being pursued very actively and data about to become available should be taken into account in any attempt to formulate generalizations in advance of those offered by the British Committee Report above mentioned. If desired, your Committee will be glad to continue its study of this subject with

a view to submitting more definite statements regarding the deficiency diseases at a later meeting. Meantime your Committee would again call attention with emphasis to the fact already fully established that the average American food supply is one-sided through liberal if not excessive use of meats and sweets and insufficient appreciation and use of milk, fruits and vegetables as food; and would urge that the Association as a whole take cognizance of this fact and seek, through its Public Health Administration and Sociological Sections as well as the Section on Food and Drugs, to foster the larger use of milk, vegetables and fruit in the American dietary. We urge that this be made a prominent part of the educational work done by health officers everywhere, and that the departments of health of our states and cities, and this Association as a whole should emphasize the importance to the public health of providing adequate encouragement and facilities for the production and marketing of these perishable foods upon which well balanced nutrition and good health and efficiency are so largely dependent.

We recommend* that a small and active committee representing the Association as a whole, in touch with both administrative and nutritional problems, be appointed to study the question as to the best method of checking the tendency to relative decline in milk production which threatens such serious results to the health of the nation, to investigate the possible development of the use of dried milk and dried milk products as a means of conserving and marketing this most important food, and to consider whether milk supply should be treated as a public utility in the hope of thus reducing the retail price of milk and increasing its consumption, whether wholesale and retail markets should be provided more liberally at public expense in order to facilitate and economize the bringing of perishable foods to the consumer, and whether Congress should be urged to extend the market news service of the United States Department of Agriculture to the end that the fruit and vegetable crops of the whole country may be brought into the service of all its consumers with the greatest efficiency and the least possible waste.

We also recommend the printing in full in the Journal of the Association of the following statement regarding milk and meat in the food supply recently adopted unanimously by the Committee on Food and Nutrition of the National Research Council:

MEAT AND MILK IN THE FOOD SUPPLY

(Committee on Food and Nutrition of National Research Council, April 3, 1920)

"It has long been known, but perhaps never sufficiently emphasized, that the milch cow returns in the human food which she yields, a very much larger share of the protein and energy of the feed she consumes than does the beef animal. Doctor Armsby (Science, August 17, 1917) has estimated that of the energy of grain there is recovered for human consumption about 18 per cent in milk, and only about 3.5 per cent in beef.

"In the report on the food supply of the United Kingdom, it was estimated that to produce 100 calories of human food in the form of milk from a good cow, required feed equivalent to 2.9 pounds starch; 100 calories milk from a poor cow was estimated to require the consumption of 4.7 pounds; and 100 calories of beef from a steer 2½ years old, to require 9 pounds starch equivalent in feed.

"Stated in terms comparable with those of Dr. Armsby this would mean that the good milk cow returns 20 per cent of the energy value of what she consumes; the poor milk cow 12 per cent; the good beef steer 6 per cent. Although this estimate is more favorable to the beef steer than is that of Dr. Armsby, yet even here it will be seen that the poor cow is twice as efficient, and the good milk cow more than three times as efficient as the beef steer in the conservation of energy in the food supply.

"Considering the whole length of life of the animal, Wood estimates that the cow returns in milk, veal and beef, 1/12 as much food as she has consumed, while the beef steer returns only 1/64; in other words, the cow is five times as efficient as the beef steer when the whole life cycle of the animal is considered.

"Similarly it has been estimated by Cooper and Spillman (Farmers' Bulletin, U. S. Department of Agriculture) that the crops grown on a given area may be expected to yield from four to five times as much protein and energy for human consumption when fed to dairy cows as when used for beef production. As Wood has very strikingly shown, the longer beef animals are fattened on grain, the less economical the process becomes.

*The Section voted to refer this matter to the Committee on Nutritional problems.

"Quite recently, Dr. Armsby has pointed out (Yale Review, January, 1920) that 'the dairy cow shows the highest efficiency of any domestic animal, both as regards conversion of food into milk and availability of the product for man.'

"Not only is the milk cow several times more efficient than the beef steer in the conservation of proteins, fats and carbohydrate for human consumption; in the gathering and preparation of mineral elements and vitamines she contrasts even more favorably with the beef animal. It is largely because of its richness in calcium and in fat soluble vitamine that milk is the most efficient nutritional supplement to bread or other grain products.

"Meat is strikingly poor in calcium and does relatively little to balance a diet consisting largely of bread or of other products of seeds. It does, of course, supplement the protein, but American dietaries would nearly always be adequate as regards protein even without the meat that they contain. On the other hand, dietaries containing little or no milk are very apt to be inadequate as regards calcium. Detailed analysis of the results of hundreds of American dietary studies shows that in practice the adequacy of the calcium intake depends more largely on the adequacy of milk supply than upon any other factor, or in fact upon all other factors combined.

"The vitamines furnished by hay and grains and thus consumed by cattle are stored in the animal's tissues to only a limited extent, but are transferred in relative abundance to the milk. Hence, the vitamines of the coarse material not directly available as human food, are brought into form for man's use very efficiently through milk production, and very inefficiently through the production of meat. Thus, the result of recent studies in nutrition which have made clearer the importance of the mineral elements and vitamines, is to emphasize strongly the great desirability of more abundant milk supply, even if this should somewhat reduce the production and consumption of meat. Our present knowledge of nutrition justifies more fully than ever before the statement that "the dietary should be built around bread and milk," bread or other grain products being the foods which furnish the most nutriment for their cost (whether in money or in land and labor) and milk being by far the most efficient nutritional supplement to bread or other grain products.

"Somewhat more of our grain crops than at the present should come directly into human consumption to augment the bread supply, and of the grain fed to cattle more should be used for the production of milk, and less for the production of meat.

"In general, 10 pounds of grain may be expected to produce not over 1 pound of meat or about 3 quarts of milk. If the 3 quarts of milk cost the consumer more (because of greater labor cost to produce) they are also certainly worth more to him. In so far as things so different as meat and milk in their nutritional properties can be compared, it is fair to say that 1 quart of milk is at least as great an asset in the family dietary as is a pound of meat. The per capita consumption of meat in the United States is so high that it might be reduced by ⅓ or even ½ with little or no nutritional loss, while a corresponding increase in milk consumption would certainly constitute a great improvement in the average American dietary.

"We are confident that a moderate shifting of emphasis from meat to milk will help in the normal evolution of American agriculture and improve the food economy and public health of the American people."

(Signed)

H. C. SHERMAN, Chairman,
C.-E. A. WINSLOW,
E. L. FISH,
ISIDOR GREENWALD.

□

Not too early to be thinking about the Fiftieth Annual Meeting of the A. P. H. A. in New York City, November 14-18, 1921.

LIST OF NEW MEMBERS

Proposed for Election to the

A. P. H. A.

December 10, 1920, to January 10, 1921, inclusive.

Names of Sponsors are set in **Bold Face Type.**
Names of New Members are in Light Face Type.

CALIFORNIA

W. H. Kellogg, M. D., Berkeley.
Rodney F. Atsatt, Inspector, California State Board of Health, Berkeley.

P. F. Nichols, Berkeley.
William V. Cruess, Asst. Prof. of Fruit Products, University of California, Berkeley.

G. N. Whitton, Berkeley.
Edna W. Bailey, Ph. D., Asst. Director, Children's Health Centers, Berkeley.

R. L. Wilbur, LL., D., Stanford.
Selah Chamberlain, Trustee Stanford University, Member Med. Comm., San Francisco.

CONNECTICUT

Anna I. van Saun, New Haven.
Mildred S. Hollinshead, New Haven.

ILLINOIS

Sarah M. Hobson, M. D., Chicago.
Emma G. Holloway, M. D., Director, Social Hygiene, W. C. T. U. of Ind., North Manchester, Ind.

Wm. H. Welker, M. D., Chicago.
Maximo M. de Ocampo, Laboratory Technician, Univ. of Ill., Chicago.

C. St. Clair Drake, M. D., Springfield.
Clayton S. Whitehead, M. D., Naperville.

John Ritchie, Jr., Boston, Mass.
Wilson & Co. Library, Atten. L. M. Tolman, M. D., Chicago.
Robert Graham, D. V. M., Animal Pathology, Univ. of Ill., Champaign.

INDIANA

H. L. B. Coote, M. D., Michigan City.
Helen M. Mulqueen, R. N., School Nurse, Michigan City.

IOWA

Merle Wright, R. N., Fairchild.
Agnes Swift, R. N., Public Health Nurse, Washington.

KANSAS

Martin Dupray, Hutchinson.
Elizabeth V. Condell, R. N., Supervisor Public School Health, Hutchinson.

KENTUCKY

P. W. Covington, M. D., Louisville.
Ralph J. Malott, M. D., County Health Officer, Harlan.

A. W. Hedrich, Boston, Mass.
Frederick H. Stover, Crescent Hill Filter, Louisville.

MAINE

James W. Loughlin, M. D., Damariscotta.
Mrs. H. E. Cotton, Damariscotta.

MARYLAND AND DISTRICT OF COLUMBIA

R. A. Bolt, M. D., Baltimore.
R. J. Ochsner, M. D., Chief, Bureau of Child Hygiene Div. of Health, Cleveland, Ohio.

Roscoe C. Brown, M. D., Washington.
Ralph B. Stewart, M. D., Lecturer, U. S. P. H. S., Washington.

L. A. Hansen, Washington.
Selma M. Dahl, R. N., Chicago, Ill.

I. W. Mendelsohn, Washington.
Ora C. Ayliffe, Supt. Water Purification Division, Fargo, N. Dak.

Blanche E. Myers, Washington.
Mrs. Jenny Velander, School Investigation Work, Skara, Sweden.

Asst. Surg. General C. C. Pierce, Washington.
Ida J. Brooks, M. D., Acting Asst. Surgeon, U. S. P. H. S., Little Rock, Ark.

Harold B. Wood, M. D., Washington.
Frederick B. Flinn, Chemical Engineer, U. S. P. H. S., South Orange, N. J.

MASSACHUSETTS

Philip Castleman, M. D., Boston.
Caroline Simons, Bacteriologist, Boston.

A. F. Allen, Campello.
Arthur L. Dopmeyer, Asst. Sanitary Engineer, U. S. P. H. S., Cleveland, Ohio.
Edmund C. Sullivan, Asst. Sanitary Engineer, U. S. P. H. S., Beaumont, Texas.

C. C. Beckley, M. D., Lancaster.
E. H. Mackay, M. D., Clinton.

John Ritchie, Jr., Boston.
Charles F. Johnson, M. D., Newburyport.

MINNESOTA

W. A. Jones, M. D., Minneapolis.
Arthur S. Hamilton, M. D., Minneapolis.
Angus W. Morrison, M. D., Minneapolis.

C. E. Smith, Jr., M. D., St. Paul.
H. N. Sutherland, M. D., Health Officer, Ely.

MISSISSIPPI

J. Ritchie, Jr., Boston, Mass.
E. B. French, M. D., City Health Officer, Natchez.

MISSOURI

J. W. Greene, M. D., Independence.
William Wood Hobbs, M. D., Raytown.

Neva Ritter, Kansas City.
Margaret Scofield, Laboratory Technician, State Bd. of Health, Topeka, Kan.

C. T. Ryland, M. D. Lexington.
A. J. Chalkley, M. D., Lexington.

Walter J. Hansen, M. D., St. Joseph.
Charles H. Werner, M. D., St. Joseph.

Dr. Borden S. Veeder, St. Louis.
American Red Cross, St. Louis Chapter, Atten. Miss Blanche Renard, Act. Dir., St. Louis.

NEW JERSEY

Harry V. Ammerman, Kearny.
John T. McClure, Health Officer, Harrison.

F. W. Green, Little Falls.
John L. Radcliffe, Supt. Filtration, Elizabeth.

NEW YORK

J. G. Wills, D. V. M., Albany.
C. D. Pearse, M. D., Owego.

O. H. Parker, M. D., Jamaica, L. I.
Victor Mildenberg, M. D., Borough Chief, Dept. of Health, Brooklyn.

George R. Bedinger, New York City.
Bailey B. Burritt, Gen. Dir., N. Y. Assn. for Improving the Condition of the Poor, New York City.

Maurice J. Lewi, M. D., New York City.
Harry E. Dubin, Ph. D., Research Chemist, New York City.

Dorothy Stabler, New York City.
Grace R. Bolen, Director of Social Service, Sloane Hospital for Women, New York City.

Frankwood E. Williams, M. D., New York City.
Ralph P. Truitt, M. D., Asst. Prof. Neur. & Psych., Univ. of Ill., Chicago.

Mary E. Carey, R. N., Yonkers.
Romeo Roberto, M. D., Director of Communicable Diseases, Yonkers.

A. W. Hedrich, Boston, Mass.
Irene F. Riker, Public Health Nurse, Seneca Falls.

NORTH CAROLINA

John F. Gordon, Henderson.
Agnes R. Harris, R. N., Red Cross Public Health Nurse, Henderson.

Edna Reinhardt, Winston-Salem.
Ellie C. Nelson, Lincoln County Public Health Nurse, Lincolnton.

NORTH DAKOTA

O. S. Craise, M. D., Towner.
Erma Smith, Co. Supt. of Schools, Towner.

OHIO

E. R. Hayhurst, M. D., Columbus.
Col. James S. Wilson, M. C., U. S. A., Surgeon, Fort Benjamin Harrison, Ind.
Mrs. Norma Selbert, R. N., Asst. Prof., Public Health & Nursing, Ohio State Univ., Columbus.

Robert S. Patterson, Columbus.
Harry E. Roulfs, Field Sec., Ohio Public Health Assn., Columbus.

J. Sheldon Scott, Steubenville.
Fred B. Harrington, M. D., Weirton.

OREGON

Grover C. Bellinger, M. D., Salem.
Chester A. Downs, M. D. Salem.

PENNSYLVANIA

H. F. Smyth, Dr. P. H., Philadelphia.
Edith Gordon, M. D., Wayne.
Edith Hedges Matzka, M. D., Wayne.

TEXAS

H. S. Capps, M. D., Beaumont.
Lewis O. Bernhagen, Director of Sanitation, Beaumont.

Robert J. Harding, San Antonio.
M. C. Erwin, City Sewer Engineer, San Antonio.

UTAH

John Ritchie, Jr., Boston, Mass.
Joseph K. Nicholes, Health Worker, St. George.

VIRGINIA

Martha Oakes, Charlottesville.
Clara L. Craine, R. N., Supt. Visiting Nurse Assn., Davenport, Iowa.
Mamie E. Rice, Farmville.
Robert K. Brock, Attorney-at-Law, Farmville.

WASHINGTON

F. A. Martin, Spokane.
William J. Kennedy, Pres. Towara Creamery, Detroit, Mich.

WISCONSIN

Mrs. Justine S. Thorp, R. N., Beloit.
Ellen F. Chapin, Pres. Visiting Nurse Assn., Beloit.

PHILIPPINE ISLANDS

M. V. Arguelles, M. D., Manila.
J. S. Fernando, M. D., Medical Inspector, Philippine Health Service, Albany, N. Y.

CANADA

John W. S. McCullough, M. D., Toronto, Ont.
Hugh W. Johnston, M. D., District Officer of Health, Sault Ste. Marie, Ontario.
Robert E. Mills, Toronto, Ont.
A. Grant Fleming, Deputy Medical Officer of Health, Toronto, Ont.
A. W. Hedrich, Boston, Mass.
Fraser S. Keith, Gen. Sec., Engineering Institute of Canada, Montreal.

Question Box

The Association has quietly maintained for the past few years a Health Information Bureau which has answered questions of the members and given them information desired, or directed them to some authority from whom the information could be secured. Two such questions have recently come to the Bureau, both of which are fundamental at the present moment. The JOURNAL invites its readers to advise out of their own knowledge and experience the young men who make the inquiries. Send replies to the Question Box, A. J. P. Health, 169 Massachusetts Avenue, Boston, 17, Mass.

1. For a year and a half I have been employed by a firm of sanitary engineers. I have done office work, and in the field have been resident engineer on constructions of considerable importance. At times my net pay has been slightly less than that of the unskilled laborer. Is there a future for my work or should I become a labor foreman or some kind of a business man instead?

2. I have completed about half the work in a public health course of a well-known school. Taking into consideration the reactionary and economical trend of legislative bodies today, does the field of public health offer me sufficient opportunity to warrant me or any other similarly qualified man in completing the course and entering public health work?

The Noonday Lunch

Who can imagine a more healthful procedure than that here presented, a meal in the open after a stiff forenoon's hike. This life gives the boys many advantages in the vacation time, a chance to become acquainted with nature, to learn the elements of care of themselves and the appreciation of fresh air. This group is from Camp Roosevelt, Muskegon, Mich., and these young fellows divide the time between military drill, exercises, swimming and aquatic sports with the improvement of the mind by no means forgotten.

PUBLIC HEALTH NOTES

Abstracts by D. Greenberg, M. P. Horwood, James A. Tobey and Homer N. Calver.

Announcement is made by the Royal Sanitary Institute, London, of a Henry Saxon Snell Prize in the year 1921. The prize will consist of 50 guineas and medal of the Institute, and is offered for an essay on "Suggestions for a System of Central Hot Water Supply and Heating, adapted to Modern Housing Schemes, and to existing groups of Houses." The following points should be dealt with:

1. Central installation.
2. Appliances for and methods of distribution.
3. Methods of conserving the heat.
4. Provision for continued supply during repair of system.
5. Cost: initial and service.
6. Combination with other services for reducing expenses.

The funds for this award, which is made by the Institute at intervals of three years, are provided by a legacy left by the late Henry Saxon Snell. The general conditions for this competition include an essay of not more than 5,000 words, typewritten on foolscap, and illustrated by drawings or sketches. Two competitors may combine in sending one essay. Essays must be delivered on or before August 31, 1921, addressed to the Secretary of the Royal Sanitary Institute, 90 Buckingham Palace. They must be submitted without the name of the competitor, but with a motto legibly marked in the right hand lower angle of the first sheet, with the motto and an identification enclosed in a separate letter. The award committee reserves the right to withhold the award or to divide it between two essays deemed of equal merit. The prize essays will become the property of the Institute. The cost of postage must be paid by the competitor. Fuller particulars may be learned by addressing the Secretary at the address above given.

✣

All-America Conference.—The All-America Conference on Venereal Diseases and Social Hygiene, which met in Washington December 6-11, 1920, was the first gun in a world war, the call to which was sounded by women before the International Health Conference at Cannes, France, in April, 1919. The delegation there, who represented the five allies who fought the great war, called for regional conferences to take up the work; and of these, this meeting was the first.

The second will be held next May at Copenhagen, Denmark, and will be attended by representatives of all the Scandinavian nations, Holland and Great Britain. Later conferences will be held in 1921 at Paris and at London, and one or both of these will be attended by delegates from Germany, which before the war did much against the twin diseases.

The meeting here was attended by representatives of ten of the nations of the Western Hemisphere—Brazil, Canada, Cuba, Mexico, Panama, Honduras, Paraguay, Peru, Santo Domingo and the United States.

Dr. Wm. H. Welch, President of Johns Hopkins University School of Hygiene and Public Health, and President of the conference, pointed out at the first meeting that only within the last few years had knowledge of the twin diseases progressed far enough to make such a gathering possible. Today, however, medical knowledge is entirely sufficient to exterminate these diseases; and it is not necessary to fight blindfolded as has been necessary for centuries in the fight against yellow fever. The diseases, however, can not be checked without the united efforts of all classes of the community; and to obtain this support, the education of the public and the doing away with the ridiculous false shame that forbade their mention is essential.

At the Conference, all classes except ministers were represented, and much regret was expressed at the absence of these. A resolution was adopted urging that ministers should attend any similar conferences that might be held.

The work of the Conference was eminently practical. Split into sub-committees, it met each morning to discuss the smaller problems involved in the treatment of the one great problem. All suggestions were considered; the chaff was sifted out and what remained was formulated into work-

able resolutions, which were referred to the general body of the delegates at the evening sessions. The problems discussed were all big and vital; and the conclusions reached will go far to do away with many of the difficulties that have troubled the rank and file in the past.

✣

Mortality for the Year 1919.—The Census Bureau's annual bulletin on mortality statistics for the death registration area in continental United States, which will be issued shortly, shows 1,096,436 deaths as having occurred in 1919. This represents a rate of 12.9 per 1,000 population, and is the lowest rate recorded in any year since the establishment of the registration area. The rate for 1919 is in striking contrast with the unusually high rate for 1918, due to the pandemic of influenza, which was 18 per 1,000. This is a drop of 5.1 per 1,000 population.

The death registration area in 1919 comprised 33 states, the District of Columbia and 18 registration cities in nonregistration states, with a total estimated population of 85,147,822, or 81.1 per cent of the estimated population of the United States. The states of Delaware, Florida and Mississippi were added to the area in 1919 and Nebraska in 1920, so that now the only states not in the area are Alabama, Arizona, Arkansas, Georgia, Idaho, Iowa, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, West Virginia and Wyoming. The Territory of Hawaii is part of the registration area, but the figures given in this summary relate only to the area in continental United States.

✣

Important Factors in Campaign Against Tuberculosis.—At the recent conference of the International Union Against Tuberculosis held in Paris, Sir Robert Philip, representing the British National Association for the Prevention of Tuberculosis, said that the incidence of tuberculosis is determined by two factors, the presence of infection and the suitability of the soil. In an intelligent campaign against tuberculosis these two factors must receive equal recognition. To exaggerate the importance of one at the expense of the other was a disastrous error. The importance of infection is seen in striking relief, when the disease gains access to a virgin soil. Many examples of this had been cited, and one of the most remarkable concerned the experience of the Senegalese troops in France during the last war. M. Borrel had shown that only 4 or 5 per cent of these troops coming direct from Senegal to the French camps at Frégus were recognized as tuberculous. Nevertheless, the mortality due to tuberculosis amongst these troops after they had been in France for five months rose rapidly from 48 in 1916 to 312 in 1917, 557 in 1918, and to 298 in 1919. Post-mortem examinations showed a special type of disease among these troops, a type which resembled the acute tuberculous infection of childhood. In the older centers of civilization that type of disease was not found in adult life. The accumulated evidence showed that in the older countries almost every member of the community was infected, and that resistance to the development of the malady was largely determined by environment. As long as infection was omnipresent, and social conditions were unphysiological, the risk of developing the disease, after exposure to infection, would remain very great. These two factors should determine the future attitude of the nations of the world in the campaign against tuberculosis.—*Lancet*, Nov. 6, 1920. D. G.

✣

Recreation for Adults and Children.—Every citizen—man, woman and child—should have ample and ready facilities for both outdoor and indoor recreation, and, from the point of view of mental health and happiness, everyone from childhood upwards should have a hobby. The person without a hobby, especially if working in a monotonous employment, is to be pitied, for the range of hobbies, indoor and outdoor, is infinite.

The necessity of recreation for women and girls equally with men and boys should be emphasized, for in the nature of things women and girls are more liable to periods of mental and physical depression; therefore, there is all the more need for them "to get out of themselves," so to speak, on all reasonable occasions.

The form of physical exercise in which a person should engage is partly dependent upon age. One can lay down no rule in that respect. As has been said: "A man is as old as his arteries," and if anyone has any doubt about his fitness for heavier

games he should never hesitate to consult an experienced qualified medical practitioner upon the subject. For both sexes of young people some form of dancing is probably the best of all indoor exercises, for it adds grace and lightness to the exercises of the gymnasium and the playing field, especially such forms as morris dancing, folk dancing, and classical dancing.

Our physical exercises should not be directed to training for mere military reasons, or to create gymnasts or acrobats, but rather to fit children and grown-ups alike for their duties as citizens—for military, industrial, or domestic duties as the case may be. To quote Sir George Newman: "Such physical training will render healthy children stronger and will give those who are delicate or under-developed, the opportunities they ought to have of reducing or removing their disabilities."—E. M. Smith, *Medical Officer,* Nov. 6, 1920. *D. G.*

✚

Welfare Work at Army Stations.—Much labor has been saved the Medical Department at Camp Jackson, South Carolina, by a system of Public Health Nursing which was inaugurated and put into effect there some time ago. This nursing service is similar to that provided in cities and is extended to all families in this part. This experiment has met with such marked success that the Surgeon General is desirous of its application wherever possible.—*Med. Mil. Review,* Oct. 15, 1920. *H. N. C.*

✚

Public Service and Personal Prosperity.—When health department budgets are not passed and are cut down by an unsympathetic board, or public health jobs, requiring long training, graciously offer salaries of an exasperating lowness, the public health worker in spite of his devotion to the public service, is tempted to look wistfully toward other fields or enviously on the trade unions. "Right to Strike" is the title of a play now being produced in London. The idea it implies, of doctors going on strike, seems to shock the audience inexpressibly. On the other hand we see almost daily handsome increases in wages being granted street cleaners, lamp lighters, street car conductors and other such public servants merely on the hint of a strike. No doubt public health workers have the same right to organize and to strike, but, of course, "professional ethics" will deny their ever even attempting such things. But sometimes, as we have said, we do look wistfully at the way the other fellows are getting on.—*Medical Officer,* Oct. 9, 1920. *H. N. C.*

✚

Conditions in Siberia.—In a discussion of conditions in Siberia, Mr. Ralph Mosteller, formerly assistant bacteriologist for the Health Department of Atlanta, Ga., gives some very pertinent facts. He has been engaged for a couple of years in the Red Cross Russian Hospital at Vladivostok, making trips for purposes of inspection to other places. Speaking of Nikolsk, which is about 40 miles from Vladivostok, he writes: "There were approximately five hundred patients. On the staff were two doctors and three nurses. Both doctors were disabled by illness and two of the nurses were unable to work, leaving but one nurse to care for the five hundred patients, many of whom were at the verge of death. There were no drugs, not even Epsom salts nor castor oil. The dying persons were on beds of rags and filth was everywhere. There could be no conditions imagined that could equal the actual suffering and inadequate service found in this hospital.

"The Red Cross immediately furnished medicines and other supplies, including clothing but there was no way by which nurses or doctors could be secured, as those in the hospitals were kept busy day and night and then could not reach all under their care as thoroughly as would have been wished. There were few Russian doctors, the better class of Russians being scarce in Siberia.

"The important fact that should be impressed on Americans," adds Mr. Mosteller, "is that Siberia is in a condition where aid is essential and yet the needed assistance cannot be rendered at this time. Many thousands will succumb to starvation and exposure during the present winter season. There is no immediate prospect for material improvement in conditions, and what the ultimate outcome may be no one can even guess."

Is the Falling Birth Rate to Be Deplored?—The author, who has written extensively on the subject of birth control, takes as his thesis the falling birth rate and analyzes the responsible factors. He discusses the question in relation to over-population and to the world's food supply, from the ethical aspect and from many other angles. In conclusion the author maintains that we have little need today to deplore the falling birth rate. In one respect, however, is the reduction in the birth rate deplorable and that is in its differential distribution. It is to be regretted from the eugenic point of view that at present the reduced birth rate operates chiefly among those classes which are best fitted to be parents, whilst it operates little if at all amongst those classes which are least fitted. It is not reasonable to suggest that the better classes who practice reasonable restraint in the matter of the size of their families should in this matter copy the reckless proclivities of the lower classes. Far better that we should endeavor to teach the latter to emulate their betters.—C. K. Millard, *Medical Officer,* Dec. 11, 1920, 251. (*D. G.*)

✚

N. O. P. H. N. Drive for Members.—The National Organization for Public Health Nursing is undertaking an important piece of work in its history. It is beginning this month a campaign for increasing its membership, interesting the young women of the country in the profession of public health nursing and inspiring the public in general to a larger measure of devotion to matters of public health. Through the press and through committee activities the entire field of school, industrial, district and the other types of public health nursing will be presented to America's millions of people until there is a universal insistence upon the establishment of this form of nursing in every community of the United States and the lifting of nursing in general to a level not reached by it in the past. It is providing for the spread of its message first through the assistance of the public health nurses who are members of the organization. With this in view, it is the plan to attempt to enroll every one of the 10,000 public health nurses in the country in the National Organization as a foundation for the greater membership of lay supporters. Nurses eligible may apply for membership by letter to national headquarters at 156 Fifth avenue, New York City.

✚

Requisitioning Unused Land for Playgrounds.—Land which is not in use and which is not expected to be used in the immediate future may now be requisitioned in Austria by national, provincial or municipal authorities and used as public playgrounds. Provisions to this effect were contained in a law enacted by the Austrian National Assembly on July 22d, according to a report received by the Children's Bureau of the U. S. Department of Labor. This land will be placed in charge of organizations interested in the promotion of outdoor recreation and will be used both by school children and young persons above school age. The owner of the land will receive suitable compensation for its use. The question whether requisition is permissible will be decided by the provincial government, which will also decide the amount of compensation when agreement is not reached on that point.

✚

Disappearance of B. Diphtheriæ From Throats of Carriers.—In a recent study from Baltimore it was shown that approximately 18% of 800 healthy children were carriers of diphtheria bacilli at one time or another and about 11% of these were carriers of virulent organisms. It was also shown that a higher percentage exists in pathological throats than in normal throats. More recently Hartley and Martin have reduced to a mathematical formula the rate with which diphtheria bacilli disappear from the throat of convalescents. By the use of a logarithmic equation they have found that approximately 5% of those remaining each day after the fifth day become free from the bacilli in 24 hours. In their work three successive negative cultures taken at weekly intervals were required. If, however, only two successive negatives had been required, then the number free each day would have been 5.4%, and if only one negative had been required the rate would have been 7.1%. Expressed in another way, the number discharged would have been increased by 9.3% and 29% respectively if two negatives or only one had been required.—*Jour. A. M. A.,* Dec. 18, 1920, 1721 (*D. G.*)

STATE HEALTH NOTES—LEGISLATION

National. Congressional Procedure. — In connection with these monthly reviews of national legislation relating to health, a description of the procedure necessary in Congress for a bill to pass may be of interest to readers of the JOURNAL. When the framers of our government established Congress they intended the Senate to represent the states and the House of Representatives the people. Both branches have equal powers of legislation, however, and no bill can become a law until both branches have passed it. Bills may originate in either branch, except measures for raising revenue, which can originate only in the House. Sometimes a bill is introduced simultaneously in both branches of Congress.

Any member may present a bill, either one he has prepared himself, or one which has been submitted to him from outside, but which goes in in his name. The bill is then referred to the appropriate committee. After giving the bill due consideration and holding any necessary public hearings, the committee may do one of four things: 1, make a favorable report, which generally assures its passage; 2, redraft or amend it and report it favorably in its new form; 3, make no report, which is equivalent to killing the bill; 4, make an adverse report, which also kills it. More than 20,000 bills are introduced in each session of Congress and most of them never get out of committee. After a favorable report the bill is put on one of the calendars. In the House there are three, the Union Calendar, relating to revenue, appropriations and public property; the House Calendar, other public bills; the Private Calendar, relating to private bills. In the Senate appropriation bills have precedence. Under certain conditions bills may be called up out of turn, such as those of special importance. Every bill must have three readings, two by title and one as a whole. When read entire, amendments may be offered by members. It must then be voted on, in the Senate by calling for ayes and nays, in the House by *viva voce* vote, rising vote, taking the vote by tellers, or recording the ayes and nays, according to the demands of the House. When a bill has passed either branch of Congress it is sent to the other to be acted upon. Here it may be passed unchanged, defeated or left in committee, or passed with amendments. In the latter case it is returned to the original chamber for a vote on the amendments. These may be passed, but if not, each branch appoints three members as a committee on conference to settle the disputed points. When this committee reports the bill may be finally passed. It is then enrolled and signed by the vice-president for the Senate and the speaker for the House of Representatives and then goes to the President to sign or veto. If he signs the bill or fails to sign it or veto it within a specified time it becomes a law.

Sheppard-Towner Bill. — The Senate passed the Sheppard-Towner bill for the protection of maternity and infancy on December 18 after several days of discussion. The bill was considerably amended, the annual appropriation being cut to $1,480,000 and the administration of the bill placed under the U. S. Children's Bureau. The bill is now (Jan. 4, 1921) before the House committee and public hearings are being held on it.

Coördination of Governmental Activities. —On December 14 the House passed Senate Joint Resolution 191, which had passed the Senate May 10. This resolution provides for a joint committee consisting of three members from each branch of Congress to survey the administrative departments of the government and recommend changes to prevent duplication and overlapping and promote efficiency. It is estimated that this survey will take about two years. The bill became a law on the failure of the President to take any action on it, either by signing or veto.

Department of Public Welfare.—A bill, Senate Bill 4542, to create a Department of Public Welfare, has been introduced in the Senate by Senator Knox for Senator Medill McCormick. It provides for a secretary of Public Welfare who shall be a member of the cabinet, and would take over the Public Health Service and Bureau of War Risk Insurance from the Treasury Department; the Children's Bureau and Women's Bureau from the Department of Labor; the Bureau of Education, St. Elizabeth's Hospital, Freedman's Hospital, Bureau of Pensions and Indian Service from

the Department of Interior; it would abolish the U. S. Employees' Compensation Commission and transfer its functions to the Bureau of Pensions; it would abolish the Inter-departmental Social Hygiene Board and transfer its functions to the Public Health Service, and would take over the National Home for Disabled Volunteer Soldiers and the Columbia Institution for the Deaf, Washington, D. C.

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Hospital Treatment for Diseased Alien Seamen.—H. R. 71930, which was passed July 30, 1919, and amended by the Senate, was passed by the House December 21. This bill provides that alien seamen afflicted with certain diseases shall be treated in hospitals at the expense of the owners of the vessel. Suspected cases can be removed from the ship. If no cure is possible they can return on the vessel.—(*J. A. T.*)

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California.—At its regular December meeting the California State Board of Health adopted a resolution regarding camp ground sanitation. It is to be applicable to any site within the state of California offered for public use on which persons may camp or picnic either free of charge or on payment.

A water supply in ample quantity and of sanitary quality must be provided to meet all requirements of the maximum number of persons using such a tract at any time. Water of inferior sanitary quality on or near such tract of land to which campers may have access shall be eliminated or purified or posted with warning placards. Toilet accommodations must be provided acceptable to the State Board of Health. Supervision and equipment sufficient to prevent littering the ground with rubbish, garbage or other refuse shall be established and maintained, with fly-tight depositaries for the wastes, which shall be conspicuously located. The method of final sewage or refuge disposal shall be subject to approval of the California State Board. At least one caretaker must visit the tract every day that it is occupied. The management of every public camp or picnic ground must assume responsibility for maintaining all sanitary appliances on such ground. Failure to comply with any of the rules shall be sufficient cause for declaring the premises a public nuisance subject to penalty.

The California State Board of Health at the same meeting passed regulations governing the construction and maintenance of slaughter houses. These regulations consider the location, construction, cleanliness, light and ventilation, floor materials, sewage disposal, disposal of by-products, keeping of animals, and toilet and washing facilities. Slaughter houses must be enclosed on all sides, and all walls, ceilings, roofs, floors, doors, fly screens, sewers, etc., must be kept in good repair. They must be kept in clean condition at all times, and rubbish must not be allowed to accumulate. Measures must be taken to prevent the harboring and breeding of rats on the premises. All rooms must be light and ventilated directly from the outside air. All doorways must be fitted tightly and doors, either screen or solid, must be kept closed excepting when in actual use. All openings must be covered with metal fly screen. Floors must be of concrete, asphalt or other non-absorbent material, with proper drainage and drainage system. Regulations provide for the disposal of by-products. Details are established with reference to the construction and fitting of the killing room and cooling room, the hide room and the pens for the animals.

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Indiana.—The State Board of Health will present for the third time to the Legislature which is now in session a full-time health officers and full-time nurses bill. This bill gives permission to the counties of Indiana which so desire to waive the present part-time health officers system and substitute for the same the all-time county health officer and all-time county health nurse. The bill as written requires the appointments to be made from an eligible list supplied by the State Board of Health, and that the appointees pass proper examinations before the Board; also adequate requirements for health appropriations and salaries. The bill also gives power to cities over 10,000 to create through ordinances a health department which will employ an all-time health officer and all-time health nurse. Full constabulary powers are accorded the appointee for the enforcing of all health rules and orders.

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Minnesota.—The Minnesota State Board of Health has been active during the past

three months in the enforcement of its regulations by means of criminal prosecutions for violations. A number of individuals guilty of delinquency in treatment have been prosecuted in the municipal courts of St. Paul and Minneapolis and committed to the workhouses of those cities.

During October two druggists were successfully prosecuted in St. Paul for selling venereal disease remedies without prescription and were each fined $10 and costs. One complaint was filed against a Minneapolis druggist at approximately the same time, but on account of a technical error in the manner of drawing complaint it was found necessary to dismiss this case. One of the large chain drug stores has been a frequent violator of this regulation.

In November a physician was prosecuted in Minneapolis for failure to report cases of venereal disease treated by him and fined $20 and costs. In December another physician was prosecuted in Minneapolis on the same charge and was fined $50 and costs.

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Missouri—The State Board of Health is undertaking the organization of an Engineering Division and is submitting to the Legislature a bill providing for its authority and support. The U. S. Public Health Service has detailed one of its sanitary engineers to assist in the engineering work in the state. The new Division will have charge of water supplies, sewage disposal, stream pollution, trade waste disposal and allied subjects. This indicates a long step forward in this regard, as heretofore the State has done very little in sanitary engineering matters. An effort is also being made to improve the laboratory facilities of the state for handling this work.

Since Saturday, December 11, 1920, physicians in this state have been required to report all cases of disease designated by the State Board of Health as "infectious, contagious, communicable or dangerous." This law was passed by the Fiftieth General Assembly and the Board has established a system of reporting communicable diseases and issued the necessary blanks and instructions. The attending physician is held responsible for making the report to the health officer. In cases where no physician was in attendance the head of the household is responsible. Failure to make report is punishable as a misdemeanor.

This new statute, which secures the standardization of the State Health Department, puts Missouri in position to coöperate fully with the U. S. Public Health Service and therefore entitled to receive the benefits of Federal assistance in the control and prevention of disease.

The following diseases are declared reportable: Anthrax, chickenpox, chancroid, diphtheria, glanders, gonorrhea, influenza, leprosy, measles, meningitis (epidemic cerebrospinal), mumps, ophthalmia, neonatorum, plague, poliomyelitis (acute anterior), rabies, scarlet fever, smallpox, sore throat (epidemic or septic), syphilis, tetanus, trachoma, tuberculosis, typhoid fever, typhus fever, whooping cough.

✣

North Carolina.—A recent decision of the Supreme Court of this state affirmed an award of $10,000 damages to a wife infected with venereal disease by her husband. This decision has broken new ground in the construing of law and is heralded by authorities as a gain in moral progress. The lower court in May, 1920, awarded the damages and the husband filed legal papers carrying the matter to the supreme court. The reviewing of the case by the higher court is long and very legal, but the concluding paragraph is to the point: "In the rulings of the learned judge who presided on trial of this case we find no error."

STATE HEALTH NOTES—GENERAL

National.—To establish a standard table of the heights and weights of children a conference of representatives of the U. S. Children's Bureau, the U. S. Bureau of Education, the U. S. Public Health Service and of various educational and private organizations working for the betterment of children has just been held in New York City. At the present time various tables of measurements are in use by the different organizations engaged in weighing and measuring children. The results of the tests are not comparable; also considerable confusion has arisen because of apparent differences in the standards of normal development as given out by the various organizations. The conference brought out the fact that the various tables are in substantial agreement as to fact, the differences being chiefly matters of presentation. A complete standard table will be prepared by a committee and all future weighing and measuring of children can then be in accordance with this uniform table. The findings of the tests will be comparable and much greater use can be made of the facts revealed.

In speaking of the health situation in this country and its prospects, Surgeon General Cumming seeks to interest the public in the diseases that are constantly with us. He states that it is unfortunate for the people to become so intensely interested in spectacular outbreaks of epidemics and be so little moved by the daily occurrence of common diseases that are preventable which cause many deaths in every part of the country. Of the million and a quarter deaths annually in this country at least 100,000 could easily be prevented by the application of available medical knowledge. For example one of the diseases which becomes prevalent about this time of the year is diphtheria. This disease is responsible for about 15,000 deaths in the United States annually. Practically every one of these deaths could be prevented, for not only have we an effective anti-toxin for treating the disease when it occurs, but what is still more important, we are now able by means of a simple skin test to determine which children are susceptible to diphtheria and, this ascertained, we can effectively immunize them so as to protect them against this disease.

The 10,000 or more deaths from typhoid fever that occur annually in the United States could also by largely prevented if communities everywhere would make certain that their water and milk supplies were protected and if simple precautions were taken in homes where typhoid fever occurs. It is encouraging to know that smallpox has been so well controlled that at present the average deaths from it in the United States number only 400 annually. Nevertheless, these 400 deaths are entirely unnecessary, for vaccination has long shown itself an effective means of control.

In almost every community in the country the wastage in infant lives is still enormous, especially when contrasted with that in New Zealand, for example, where the death rate is only 50 per thousand births in the first year of life as against 100 in the United States.

✚

California.—At the present time an arrangement is in force with the California State Board of Health for the immediate registration of public health nurses who have secured their R. N. After April 1, 1921, all nurses will be required to take an examination if they wish to secure public health standing. Under the regulations the degree R. N. is necessary before certification.

✚

Indiana.—A leper was reported in Indianapolis November 12th and examination confirmed the diagnosis. He evidently acquired his disease when a soldier in the Philippine Islands. He is entirely under the care of the State Board of Health, which has ample appropriations for the care of lepers.

Rotary Clubs, Kiwanis and Optimist Clubs over the state of Indiana requested some time ago lectures upon public health questions from the State Board of Health; therefore for the past year the secretary and assistant secretary have appeared almost weekly before such clubs, setting forth the great economy of looking after the public health. In every instance where these talks have been given the clubs have responded with strong resolutions supporting the public health cause.

Mr. J. Craven, according to the statutes, has been appointed a member of the Board of Sanitary Commissioners of the Sanitary District of Indianapolis to succeed himself.

Mr. Craven was at one time the sanitary engineer of the State Board of Health and resigned to undertake a like service of the United States Public Health Service. Subsequent to this he was an engineer of the Terre Haute Water Works Company.

✚

Illinois.—The State Department of Public Health, through its Division of Engineering and Sanitation, has made a preliminary survey of all swimming pools in the state with a view to making detailed inspections of each pool later. Subsequently a state bulletin will be prepared giving full information relative to construction and operation of swimming pools.

St. John's Sanatorium, located on a farm near Springfield, Ill., opened large quarters for crippled children in the new building January 1st. This work will be under the general supervision of Dr. Clarence W. East, chief of the Division of Child Hygiene and Public Health Nursing of the State Department of Public Health, and will consist largely in hygiene and the reëducation of victims of poliomyelitis.

Dr. Frank P. Auld of Shelbyville has been appointed district health officer, Division of Communicable Diseases, State Department of Public Health.

Mr. Stanley T. Barker, formerly employed in the Engineering Division of the Chicago Sanitary District, has accepted a position as assistant sanitary engineer in the Division of Engineering and Sanitation of the State Department of Public Health.

✚

Kentucky.—The United States Interdepartmental Social Hygiene Board has recently assigned a staff of four social workers to Dr. A. T. McCormack, secretary of the State Board of Health of Kentucky, to establish a Bureau of Protection of the Armed Forces of the United States Against Venereal Disease.

The program of this bureau is, in brief, as follows:

1. Search for foci of venereal disease that may be a menace to soldiers, sailors and civilians.

2. Identification or discovery of individuals who are carriers of venereal disease and who may be a menace to soldiers, sailors or civilians.

3. Inquiry into the reasons and conditions that have led these individuals to become carriers of venereal diseases.

4. The preparation of systematic, accurate reports covering the activities of the protective social agents of the board.

5. The presentation of these reports to law-enforcing agencies through proper channels.

6. Follow-up investigations covering—

(a) The use made of evidence submitted to law-enforcing agencies. The enforcement of laws relating to the prevention of venereal disease.

(b) The marshalling of coöperative community forces for the enforcement of laws for the "care of civilian persons whose detention, isolation, quarantine or commitment to institutions may be found necessary for the protection of the military and naval forces of the United States against venereal disease."

(c) The conduct of individuals subsequent to their medical or social treatment for the prevention of venereal disease and the eradication of prostitution.

(d) The care of persons while they are quarantined, isolated or committed to institutions as a measure for the protection of the armed military and naval forces of the United States.

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Michigan.—Public health nursing campaigns, instituted by the newly installed bureau of Child Hygiene and Public Health Nursing of the Michigan Department of Health, have been completed in more than 30 counties of the state. By spring it is expected that all of the 83 counties will be canvassed. Harriet Leck, R. N., Director, formerly superintendent of nurses of Grace Hospital, Detroit, is endeavoring to supply public health nurses for counties which at present have no nursing systems.

St. Clair county and the city of Port Huron have combined to form a branch laboratory of the Michigan Department of Health. Florence Shelley, formerly of Harper Hospital, Detroit, will be in charge.

Born of war-time conditions, Michigan's campaign against venereal diseases has increased in scope and efficiency until at the present time, three years after its launching, the work is said to compare favorably with what 30 years have accomplished in the fight against tuberculosis.

During 1920 cases of venereal disease reported by Michigan physicians to the State Department of Health reached 19,793. Since the law requires doctors to report all cases this number approximates the total number of new cases and cases that have reappeared in the past year.

Practically all of these cases were under physicians' treatment, as is proved by the 31,508 prescriptions which were reported by druggists throughout the state. Under a Michigan law, which has been in effect 18 months, every druggist is required to report prescriptions and is forbidden to sell patent remedies for syphilis and gonorrhea.

Supplementing the work done by private practitioners, 76,501 individuals were given treatment in 11 city clinics. This phase of the work also shows an increase over preceding years. Nearly all the patients in the clinics come voluntarily, no one being accepted who is able to pay for private treatment.

Believing city clinics will effectively assist in curbing venereal diseases, three additional clinics will be established soon at Port Huron, Alma and Escanaba. Hospitalization of patients is gradually being done away with, the Board placing emphasis on the clinical treatment which enables affected persons to continue as wage earners while being cured.

Boasting the first traveling health clinic in the United States, with facilities for physical examination of children and adults, the State Department of Health has now added to the clinic a special division where venereal diseases may be diagnosed. One of the first states to combat venereal diseases actively, Michigan is now said to lead all states in control work.

The venereal disease division of the traveling clinic is already proving of service to people of the state and during the short time since it was founded hundreds of persons have come for examination and to have blood tests made.

Started early in September, the traveling clinic has visited fifteen counties and held clinics in forty-one towns and villages with the expectation of covering very soon every county in the state.

Wiped out for a number of years by general vaccination which relegated it to the role of one of the minor diseases smallpox is again threatening to become epidemic in Michigan.

Because Michigan has acquired an unvaccinated population, and therefore a susceptible population, smallpox endangers the entire state at the present time. People who were vaccinated a number of years ago have outgrown their immunity, and parents feeling a sense of security from the disease have neglected to have their children immunized by vaccination.

Since January 1, 3,719 cases of the disease have been reported to the Health Department, compared to the 2,070 cases in 1919. While some of the increase can be attributed to better reporting, the situation is serious enough to command attention. Wyandotte, Sault Ste. Marie and other cities have already experienced small epidemics.

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Maine.—In the recent months the Maine Public Health Association has been carrying on a campaign that for activity and

WILLIAM A. HARRIS

This is the missing Secretary of the Maine Public Health Association. Description—Age, 33; weight, 160 pounds; height, 5 feet 8 inches; light brown hair; blue gray eyes; good teeth; spectacles; three-inch scar on left cheek; left hand slightly withered; slight limp in left leg. Send any information to the Association at Augusta, Me.

success has been remarkable. The unfortunate fact that the executive secretary of the association became mentally deranged through overwork and illness and while in this condition disappeared from his home has been stated in the January News Letter. A picture of the young man is here given against the possibility that he has made his way to some hospital or haven and is still alive.

✣

Missouri.—In coöperation with the U. S. Public Health Service, Missouri has established a Division of Child Hygiene and a Division of Venereal Diseases.

✣

Mississippi.—The Mississippi State Board of Health is developing upon a careful basis a Bureau of Child Welfare and medical inspection of school children. Dr. Edith B. Lowry of the U. S. Public Health Service has been temporarily in charge of this work.

This bureau will have for its objectives the following activities:

1. Weigh and measure all school children.
2. Physical examination of school children.
3. Follow-up work by public health nurse to obtain correction of defects.
4. Nutrition clinics.
5. Health center in each county.
   (a) Baby and pre-school clinics.
   (b) Prenatal clinics.
   (c) Classes for young mothers.
   (d) Clinics as needed locally.
6. County health organization.
7. Prenatal letters.
8. Birth registration—baby book.
9. Newspaper service, educational.

The State Board of Health is enlarging its activities in all of the bureaus and contemplates more active and aggressive health work during 1921 than in any year of its previous history.

✣

New Jersey.—A post-graduate course in Child Hygiene was opened in Trenton in November with an attendance of more than 50 nurses by the New Jersey State Department of Health in coöperation with the State Normal School. Training is given in fundamentals of child care, in applied hygiene, in social case work, and in the many other phases of public health work with which child hygiene nurses come into contact, in their direct relation to child hygiene work.

Most of the success of a child hygiene nurse depends on her ability to teach the mother how to take care of herself and her baby and the school child what to look out for, so that pedagogy has been given a prominent place in the program of the course. Lectures will be given describing the various child caring institutions and resources of the state, counties, cities and towns so that the child hygiene nurse will be able to refer to the proper agency cases that come to her notice that need attention. Similarly, labor conditions will be presented to give the nurse a better understanding of the actual facts in regard to laws in New Jersey for the protection of pregnant women, married and unmarried, and for the elimination of child labor. The subjects on the program include control of contagious disease, prenatal care, school hygiene, home economics, oral hygiene, mental hygiene, baby keep-well stations, housing and home visiting, pediatrics and child hygiene, vital statistics and records.

Sixteen series of lectures occupying all day on successive Fridays will be supplemented by fifteen sessions of field work which will include visits to health offices, laboratories and clinics and welfare stations.

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New Mexico.—During December an extensive educational campaign has been carried on in high schools in New Mexico. "Keeping Fit" exhibits for boys and girls, with lectures, have been presented in the high schools in Valencia, Socorro, Dona Ana, Otero, Lincoln, Guadalupe, Quay, Curry, Roosevelt and De Baca counties by Dr. Don L. Gudakunst, and in Mora, Colfax and Union counties by Mr. H. F. Gray. A series of lectures on public health, illustrated by lantern slides, has been presented in Torrance, Lincoln, Eddy, Lea, Roosevelt, Curry and Quay counties by Dr. G. S. Luckett. In the smaller towns where electric light was not available, the stereopticon was operated by means of storage batteries, or direct from an automobile generator.

New York.—Dr. Hermann M. Biggs, State Health Commissioner, who has been in Geneva, Switzerland, attending the second meeting of the International Red Cross Societies, has returned. He was one of the three Americans at the organization meeting in 1918.

A health coördination committee has recently been organized in Lancaster, having named its functions as

(1) Coördination of health activities in the community;

(2) Promotion of public health education;

(3) Support of approved health measures and coöperation with the public authorities in meeting emergencies relative to public health.

The following are the members of the committee: John O. Garretsee, Jos. T. Schaefer, Miss Emma Hoffeld, Dr. Clarence L. Mackey, Dr. Ernest N. Erwell, all of Lancaster, N. Y.

Through the efforts of Dr. Clark, the Board of Health of Lackawanna is to employ a full-time nurse for the parochial schools of that city.

During the month of November three tuberculosis clinics were held under the auspices of the State Department of Health at Ellenburg, Mooers and Dannemora, in Clinton County. In all 45 patients presented themselves for examination. Of these 8, or 18 per cent, were found tuberculous; 16, or 35 per cent, suspicious; 21, or 47 per cent, negative. Patients examined at the clinics presented cards of admission from their physicians. A portable X-ray machine was furnished by the State Department of Health. Detailed reports, including the physical findings and interpretation of X-ray plates, together with the recommendations, were mailed to the patients' physicians.

At the group consultation clinics held at Walton in November, the State Hospital Commission provided a force of stenographers from the Albany office and from the Binghamton State Hospital to augment those detailed by the State Department of Health, thus enabling the consultants to dictate their notes during the examination of their cases. Seventy-one original examinations and 172 consultations were made. No effort was made to reach patients directly, the sole object of the clinics being to supply the local physicians with consultation service needed but not otherwise procurable.

In all private institutions having a large number of child residents the Department of Health of the City of Buffalo is using the Schick test to determine which of the children are non-immune to diphtheria and to such toxin-antitoxin immunity is being given. It is expected that in the near future the same preventive measures will be used in the public schools of the city.

In Canadaigua, State Sanitary Supervisor Dr. B. R. Wakeman, assisted by Dr. Harry W. Smith, school physician, is applying the test to all school children presenting cards signed by their parents giving the necessary permission.

From the report of Miss Emma R. Cross of Medina we copy the following from "Things Accomplished by One Public Health Nurse," which is a part of the work she has been able to do during one scholastic year:

"Fifteen rural school districts visited preparatory to subsequent inspection; school census made in four districts and reports thereon. Over 1,000 children inspected and notification cards sent to parents. One hundred and fifty postural defects taken up in conference with teacher of physical training.

"Corrections secured only through personal follow-up by nurse: Glasses provided, 32; teeth repaired, 49; adenoid and tonsil operations, 18 (in 12 of which latter cases nurse gave the anesthetic); 1 case circumcision.

"Other services: Accompanied 44 children to physicians; 7 cases partial blindness needing care reported to State Commission for the Blind; 26 infant welfare visits at homes; 164 actual nursing visits; 3 private nurses relieved each one-half day and a night; one patient accompanied to hospital in neighboring city; 365 classroom inspections; 10 evening classes conducted in home nursing; 4 classes in sex hygiene; secured more sanitary conditions in several school buildings; made one visit (and report thereon) to Niagara County Tuberculosis Hospital; assisted at one rural tuberculosis clinic; clothing secured for some needy children; educational literature distributed; coöperating with the teacher of domestic science, milk lunches established;

county tuberculosis seal sale conducted; the physical defects of all children in two special class rooms corrected."

The Valeria Home, which was established and endowed by the will of the late Jacob Langeloth, president of the American Metal Company, has just completed a successful season of its summer camp for convalescent business and professional women on its thousand-acre plot in Westchester County, near Croton-on-Hudson, N. Y.

Plans are now being made for the construction on the same site of a year-round home for recreation and convalescence, designed for men and women of education and refinement who are able to pay a small weekly charge for their care and entertainment. Tentative plans call for the construction of about seven houses, each accommodating about 20 persons, an administration and general service building and a club house for indoor and outdoor recreation.

The executive offices are at 7 East Forty-second Street, New York City. Mrs. Valeria Langeloth is president; Mr. Gwyn Walker, executive secretary, and Dr. Carl E. McCombs, consulting director.

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New York City.—Plans of the New York County Chapter of the Red Cross for 1921 provide for service to nearly a million persons in that city during the year, according to John S. Ellsworth, chairman. Three hundred thousand will be benefited through health work alone. Following the peace time policy of the organization, this will be largely of an educational and preventive nature, but extensive plans have been made along curative lines.

At child health stations established in various parts of the city hundreds of undernourished school children will receive special care under the supervision of child health specialists and trained nutrition workers. The children will report for instruction at the health stations every week. This will be supplemented by follow-up work in the homes with the parents. In addition to being brought up to normal weight, a process which takes from two to four months, the children will have other physical ailments remedied, such as diseased tonsils and adenoids, ear and eye defects.

Important experimental work is being undertaken at one of the public schools in coöperation with the Health Department. To show what can be accomplished through an up-to-date efficient health service, the Health Department has installed a half-time physician and full-time nurse in the school. Ordinarily there is only one nurse for three schools. The Red Cross will operate several nutrition classes, conduct a dental clinic and give instruction in dental hygiene at the school. In this work it will be assisted by 150 dietitians and public health workers from Teachers' College, Columbia University.

The first extensive health information bureau in the city has been opened at Greenwich House, on the lower west side of the city. The bureau is prepared to meet the needs of the 76,000 residents living in that district.

New York University, New York City, is giving a course in labor and employment management, of which the second semester, February 3 to May 12, is to be devoted to plant sanitation and hygiene and welfare work. The course will include the study of accident prevention through methods and organization; of fire prevention through methods and apparatus; the medical and surgical features of treatment, the emergency hospital, and physical examination. There will be lectures on hygiene, health conservation and health education. A portion of the work will cover factory conditions, heating, lighting, humidification and ventilation, sanitaries, lavatories, lockers and laundry rooms. In addition to some of the commercial problems like profit sharing and bonuses, the question of hours as affecting the worker, will be discussed, together with recreation, games, clubs and vacation camps. The course is under the management of the School of Commerce of the University.

Mrs. Isaac L. Rice, of New York City, who has been felicitously christened by Figaro "that pious fairy of silence" and who among other things initiated the quiet zone about schools and hospitals as well as a successful movement towards a sane Fourth of July, has taken up again her campaign for the suppression of unnecessary noise. Eight or ten years ago her beginnings were made, resulting in the silencing of the unnecessary tooting of the steamers on the Hudson

and other needless noises. Mrs. Rice has in recent years been active in war work and the very necessary post-war charities, but has now become again an influence towards the suppression of noise in New York City. This is quite largely from automobiles, although the regulations would make it possible for a family to suppress legally the needless noise of a family next door in an apartment house. If a tenant keeps a barking dog, the health department, under its regulations, can invoke the act of public nuisances. Dr. Copeland seems to be fully in agreement with Mrs. Rice, and has begun on the part of the health department of the city an official movement towards the suppression of unnecessary noises.

✚

Ohio.—The most serious typhoid fever epidemic in the history of Ohio is that which occurred in the city of Salem during October, November and December. A total (to December 10) of 866 cases of the disease developed in a population of about 10,000. A leaky tile pipe line used in conveying water from one group of wells to the reservoir which supplied the distributing system of the city water supply was the cause. It is presumed that material from nearby sewers leaked into the water line when the pressure in the latter became low. The State Department of Health had a force of ten members on duty in Salem while the epidemic was at its height, and as soon as the pollution of the water supply was discovered, installed an emergency chlorination outfit for its disinfection. The State appropriation of $5,000 was employed in providing consulting medical and surgical service as a means of keeping mortality at a minimum. The services of Dr. Henry A. Christian of Harvard Medical School and Dr. Charles F. Hoover of Western Reserve Medical School were obtained as medical consultants, and a surgical team from Cleveland was sent into Salem. By December 10, approximately five weeks after the epidemic reached its peak, 23 deaths had been reported, and health authorities were hoping that a new record in saving of lives of typhoid victims would be established.

Using the Salem epidemic as an argument, the State Department of Health plans to ask the coming legislature for a law requiring regular bacteriological examinations of public water supplies. Such examinations are not required by existing law, and had not been made in Salem.

The tile pipe line which was responsible for the outbreak was installed at a time prior to the adoption of the present system whereby public water supply installations are subject to the approval of the State Department of Health.

A series of free tuberculosis clinics, to be held in various counties of Ohio during the coming year, is planned. Physicians from the Ohio State Sanatorium will conduct examinations of suspected tuberculosis cases and will carry on a general educational program in regard to the disease. The State Department of Health, the local health department, the Ohio State Sanatorium, the Ohio Public Health Association and the Ohio State Medical Association are in coöperation in plans for the clinics.

Arrangements for the demonstration of rural public health work, to be conducted in Portage County during 1921 under the direction of the Ohio State Department of Health, are going forward rapidly. The county health department will be supplemented by additional personnel to be supplied by the State Department of Health, the Red Cross and the Ohio Public Health Association. Funds to aid in financing the program are being raised by popular subscription in Portage County. The program of the demonstration will be put into operation gradually, the development of adequate nursing facilities being the first phase to be carried out. It is planned to use Portage County as a school for health commissioners from other counties in the state while the demonstration is in progress.

✚

Cincinnati, O.—The death rate for 1919 was 15.9 per 1,000 of population, a low mark for Cincinnati. The banner year, however, is 1920, with a rate of 15.1. Expressed in another way, there were approximately 300 deaths less than in the preceding year. The average rate for the last ten years, not including the abnormal one of 1918, was 16.7 per thousand.

The cumulative effect of public health work, social service and a higher standard of living, is reflected in the relatively small number of deaths from tuberculosis, 625, as compared to the annual toll of 950 in the past decade.

The small number of deaths, 29 per 100,000 of population, caused by gastro-enteritis in children under two years, is a tribute to infant care, public health nursing and the purity of the milk supply. In 1910 the rate was 103.8.

With a nucleus of the tuberculosis dispensary, which was turned over to the city by the Anti-Tuberculosis League, there has been developed a health center containing four separate bureaus, tuberculosis, venereal disease, mouth hygiene, and child hygiene, for the benefit of those who are unable to pay for health supervision.

In appraising public health activities for 1920, mention should be made of the trachoma clinics conducted by the U. S. Public Health Service, under the auspices of the State and local Health Departments; the campaign against malnutrition which has been made the basis of school medical examination; the care of immigrants under joint supervision of the Health Department, Better Housing League and Community Service; the movement for the control of cancer; the campaign for modern sanitary flush toilets in every home, and the splendid service of the laboratory.

✚

Pennsylvania.—The University of Pennsylvania has just completed a free course of public lectures devoted to timely phases of the public health problem. The ten lectures in the series touched upon school medical inspection, relation of occupation to health, reconstruction of under-developed children, role of insect and rodent carriers, milk supplies, child hygiene, statistics, tuberculosis and epidemic diseases. In its Saturday course of free public lectures health topics have been considered with other subjects. A lecture on "Some Applications of Bio-chemistry" has already been given, but six others are still in prospect—"Death From the Standpoint of the Physiologist," "Important Phases of Public Health," "Relation of Bacteria to Health and Disease," "Elimination of Vibration and Noise," "Advances of Medicine" and "Louis Pasteur." The lecturers are members of the University Faculty.

✚

Texas.—Persons interested in public health in this state are calling attention to the fact that there is not a single hospital bed in the state nor is there any sanatorium for tuberculous negro patients. It is asserted that through the universality of the negro as servants, laundresses, barbers and waiters, there is danger for the white population. The servants handle raw food, serve it after it is cooked and prepare the food for children and have in these processes many opportunities to transmit disease. In its estimate of the distribution of the disease in the state the Texas Public Health Association asserts that the estimate of deaths of negroes from tuberculosis is more than 6,000 a year, with a probability of 50,000 persons afflicted with the disease.

The Texas Water Works Association has made arrangements for schools of instruction at Texas University and Baylor to teach water works operators the principles of water purification, including filtration. The purpose of the courses is to afford to cities an opportunity to have better domestic water supplies through instruction given to their assistants in the water departments. The courses include only one week of intensive study and there are no charges for instruction, and no laboratory fees. The cities of Texas have been urged to give leave of absence with pay to employees so that they may attend these schools.

"Scales for every single school in the state," is the slogan of Miss Pearl N. Hyer, R. N., public health nurse of the Texas Public Health Association, who emphasizes the fact that the weight of a child is one of the best indications of good or bad health.

This nurse, who is examining Texas school children in all parts of the state, gives entertainments to help earn the money for scales in the schools where she does examination work. In the playlet, "The Health Fairy and Cho Cho, the Health Clown," she impersonates the Fairy Good Health, and in this way impresses upon the children the principles of good hygiene.

In examination work in the Lone Star State it has been found that nearly 50% of Texas children are underweight, indicating lack of proper food at the proper time, nervous strain, or not enough sleep.

INDUSTRIAL HYGIENE AND OCCUPATIONAL DISEASE

Abstracted by Drs. E. R. Hayhurst and E. B. Starr.

Rest Pauses and Increase of Production.—This Report No. 10, entitled "Preliminary Notes on the Boot and Shoe Industry," mentions one experiment with rest pauses on a plan in which two out of a team of three women, working on presses, worked 40 minutes while one rested 20 minutes, and then replaced one of the others. Thus each one actually worked 30 hours per week instead of 46. A considerable increase of output followed. This type of output was more noticeable among the unskilled and less robust, than among those whose output was high before rest pauses were introduced. The results were to the advantage of both employer and employee. The output per machine was increased about 50%; and if one member of the team was absent the press could still be worked; the employees were contented, and accidents were reduced. It was also found in another investigation that the practice of ceasing to work on Saturday was justified because of low hourly output with overhead charges remaining the same.—*Industrial Fatigue Research Board* (Great Britain), Report No. 10, 1920. (See *The Lancet*, December 4, 1920, p. 1154.)

✣

Posture in the Workshop.—The British Home Office has recently directed attention to the question of posture in a pamphlet entitled, "Seats for Workers in Factories and Workshops." Several examples of workers' chairs are illustrated, some adapted for use at the work-bench, and others, taking up very little room, which are suitable for attaching to the walls of the workshop or to pillars, where they exist. Since workers vary very much in height, it is essential that the chairs should be adjustable. To be of use the support to the back should only be slightly sloped away from the vertical, and the support should usually be such as to assist the lower part of the back. For work necessitating alternate standing and sitting, a seat that can be readily pushed out of the way when the operator stands up is essential. The Marshall chair is a good example of this pattern, and it has given valuable results where it has been introduced in the United States by Mr. Frank B. Gilbreth. This seat has been found extremely useful, since with it crippled soldiers are able to take up bench work where this had been their pre-war occupation.

Seating, if supplied, should prevent the onset of fatigue. This is only done when a healthy posture is encouraged. There must be no reaching too high or too low, nothing that tends to prevent the full expansion of the chest or in any way encourages a cramped position of the body. The essentials of a good chair are as follows: Sufficient depth from front to back; a rounded or sloped front edge; adequate supports for the feet, adjustable at a suitable height; while the seat itself should be adjustable for height, and, where a back support is supplied, this should not be too high or too far out of the vertical.—*Lancet*, Oct. 16, 1920. (*D. G.*)

✣

Determination of Aniline Vapors in the Air.—The writer investigated several methods and concludes that the Pettenkoffer method is the best method of determining quantitively the presence of aniline vapors in the air. Her results showed that aniline was present in the air surrounding buildings where aniline and aniline products are made, its presence being greater near the floor than at the respiration level.—Miriam S. Iszard, M. A., *Jour. of Industrial Hygiene*. November, 1920, pp. 259-266.

✣

The Length of the Work Day—The investigators for the National Industrial Conference Board maintain that the conclusions presented in Public Health Bulletin No. 106, are too sweeping and conclusive, because in the two plants in which the 8-hour and the 10-hour were compared, conditions were not fairly comparable, and that the basis of experience was too small to justify that the conclunions are applicable to industry in general.—*National Industrial Conference Board*, Special Report, No. 14, August, 1920.

PUBLIC HEALTH LABORATORY NOTES

Abstracted by Arthur Lederer, M. D.

Polychrome Methylene Blue Stain for Fresh Tissues.—A number of methods have been published but they all require time for ripening. The shortest time (that described by Terry in the *Jour. A. M. A.*, 74, 1775) required six days. This period for ripening can be eliminated by boiling the mixture, the stain on cooling and filtering being available for immediate use:

FORMULA

	Gm. or Cc.
Water, (distilled)	100
Potassium carbonate	1
Methylene blue	1

The ingredients are boiled in a flask for 15 minutes and allowed to cool. A slight precipitate may form. After filtering, the stain may be used at once. The precipitate should be allowed to dry on the filtered paper. This may be dissolved off with 20 or 25 cc. of 95% alcohol and added to the filtrate. This stain keeps well and, if anything, improves with age. The efficiency of the stain is considerably increased by the use of a mounting fluid made according to the accompanying formula:

MOUNTING FLUID

	Cc. or Gm.
Water	75
Sodium chlorid	8
Resorcin	2
Glycerin	25

This efficiency depends on the resorcin, which sharpens up the red.—Fred Thibault, *Jour. A. M. A.*, 75, **1423, (1920).**

✣

Technic for Staining Sputum for Tubercle Bacilli.—The method of staining sputum for tubercle bacilli recommended by the author takes less time than the ordinary method and raises the percentage of positive results by about 25. A thick portion of the sputum or several mucopurulent pellets are selected and transferred to the slide; one drop of NaOH is added and the sputum emulsified with the aid of heat into a transparent gelatinous mass which is spread evenly. The slide is dried in the incubator, then immersed in carbol-fuchsin, warmed to incubator temperature and allowed to remain in the incubator fifteen minutes. It is then washed in equal parts of Esbach solution and water, decolorized with 25 percent nitric acid until faintly pink, washed with water and alcohol and counterstained with malachite green (1 part of saturated alcoholic solution in 19 parts of water) for 30 seconds to one minute. Malachite green gives a soft ground work in strong contrast to the bacilli and materially lessens the labor of search.—H. Distaso, *Lancet*, Jan. 3, 1920, 19.

✣

Influenza Bacillus Dies In Mixed Culture.—A fairly representative group of strains of *B. influenzæ* were inoculated in mixed culture with *B. xerosis, B. diphtheriæ, B. coli, M. pneumoniæ,* and with staphylococci on a variety of blood-free mediums. The influenza bacillus not only failed to multiply under these conditions but the cultures died out after one or two days. On blood-free agar containing killed cultures of staphylococci and of *B. xerosis,* no growth of *B. influenzæ occurred.*—J. J. Putnam and D. M. Gay, *Jour. Med. Res.*, 42, 1, (1920), *Jour. A. M. A.*, 72, 1452, (1920).

✣

Are Serum Disease and Anaphylaxis Identical?—The author gives several reasons for his inability to conform to the view that serum disease and anaphylaxis are more or less identical. The solution of this problem by experiments on animals is far from satisfactory, for they do not react to perenteral injections in the same way as man. Thus the first injection of horse serum into guinea pigs provokes no symptoms, whereas the second injection provokes shock, which is usually fatal. In man, on the other hand, a first injection produces in a certain ratio of cases a reaction with definite symptoms of varying intensity. A second injection provokes the same symptoms, but more frequently earlier and more violently than the first injection. The author has given about 18,000 persons prophylactic in-

jections of serum and at least 600 subsequently developed diphtheria for which, in most cases, a second injection of serum was given. Yet in no case was any sign of shock seen. Again, in several cases of meningitis, in which two intraspinal injections were given with a certain interval, no shock was provoked. Serum disease was observed in 35% of 1,669 patients given a first injection of horse serum, and in 77.5% of the 80 patients given a second injection.—Ustvedt, *Norsk Mag. for Lægevidenskaben*, July, 1920; *Brit. Med. Jour.*, No. 3124 (1920).

✚

A Culture Medium for Diphtheria Bacilli.—The author describes the medium for the culture of diphtheria bacilli: Nine parts of blood serum and one part of a 15% solution of sodium hydroxide are kept at a temperature of 37° C. for 48 hours; after neutralization with hydrochloric acid, four parts of nutrient agar are added and the mixture is heated for half an hour to 105° C. This medium is said to be sterilizable, transparent and stable; it can be poured and requires little blood serum.—Klein, *Deut. Med. Woch.*, March 11, 1920; *Brit. Med. Jour.* No. 3123 (1920).

✚

Formation of Agglutinins by the Typhus Virus.—X_{19} agglutinins were constantly present in rabbits which had been injected with the brain of guinea pigs infected with the typhus virus, thereby proving that the typhus virus produces the same reaction in the rabbit as in the human subject. Intraperitoneal injection of typhus virus in the rabbit produced agglutination of X_{19} in each of the 23 cases examined. The serums were tested at all periods after infection, and it was found that no agglutination of other organisms was produced. Since in the rabbit typhus virus usually fails to produce any disease, changes in the organs if present at all were very slight and secondary charges in the serum did not occur. There can be no doubt that the living virus is the cause of the agglutination, for the killed virus does not cause any agglutination in the experimental animal.—Weil and Felix, *Wien. Klin. Woch.*, July 22, 1920; *Brit. Med. Jour.* No. 3120 (1920).

✚

Tuberculous Meningitis With Normal Cerebro-Spinal Fluid.—The author records two cases of tuberculous meningitis (in adults) secondary to pulmonary tuberculosis; the lumbar punctures were negative—not only were there no tubercle bacilli, but there was no lymphocytosis or excess of albumin in the cerebro-spinal fluid.—Giroux, *Paris Med.*, July 10, 1920; *Brit. Med. Jour.* No. 3118 (1920).

✚

Relation of Different Strains of Influenza Bacilli as Shown by Cross Agglutination and Absorption Tests.—The influenza bacillus represents a heterogeneous group of organisms as shown by agglutination and absorption tests. Identical strains occur. No differentiation can be made by these methods between the organisms isolated from normal healthy throats within two months preceding the epidemic and those isolated from the throats of influenza patients. A person may carry in the throat three different strains of this organism at the same time. The morphology alone is unreliable as a means of dividing this group of organisms into sub-groups.—Howard H. Bell, *Jour. Inf. Dis.*, 27, 464 (1920).

✚

Some Variations in Normal Blood Sugar.—Efforts to change blood sugar percentage of five normal persons by increased or diminished water intake and excretion failed to change the blood sugar percentage. This indicates that for practical clinical purposes the blood sugar percentage method is accurate. Daily variations of blood sugar percentage occurred in five normal persons. These variations seem to depend on changes in the weather.—Solomon Strouse, *Arch. Int. Med.*, 26, 751 (1920).

✚

Bacterial Inhibition (Germicidal Action in Milk)—The combined evidence of microscopic examination and plate count demonstrates a germicidal property, or actual decrease in numbers of bacteria in raw milk under certain conditions. The germicidal property is destroyed by heating to between 80° and 90° C. for two minutes. The germicidal action is specific, depending on both the individual cow and the species of bacteria. No common relation between agglutination and bacterial inhibition is noted, except that both are destroyed by heating the milk.—William H. Chambers, *Jour. Bact.*, 5, 527 (1920).

Provocative Reactions in the Cerebrospinal Fluid in Neurosyphilis.—Case histories are given to show that after treatment the cerebrospinal fluid, which was negative before treatment, may become positive in all routine tests, or a weakly reacting fluid may become much stronger. This is called a provocative reaction. It may be accomplished by the intravenous or intraspinal injection of arsphenamin. This is compared to the Herxheimer reaction or the production of neurorecurrences and is considered as the laboratory analogue. The provocative reactions are shown to occur in both the ventricular and spinal fluids. This is not a frequent phenomenon and patients with vascular neurosyphilis with negative cerebrospinal fluids may not react in this manner. However, diagnosis may occasionally be made clear in obscure cases. In none of the cases in this series was the provocative reaction obtained with the blood serum. Despite the increase in the strength of the spinal fluid reactions, clinical improvement may result, and continued treatment may again produce a negative fluid.—Harry C. Solomon and Joseph Victor Klauder, *Arch. Dermat. Syphol.*, 2, 679 (1920).

✝

Agglutination in Influenza.—Of 30 strains isolated from patients with influenza, 11, or 36%, gave agglutination with the patient's serum. Seven of these occurred in uncomplicated influenza and 4 in influenza pneumonia. Of the remaining 19 negative cases 10 had pneumonia. Of 30 strains only one was agglutinated by heterologous serum.—Kirsten Utheim, *Jour. Inf. Dis.*, 27, 460 (1920).

✝

Effect of Streptococcus Hemolyticus Infection on the Reaction of the Blood of Rabbits.—The blood of normal rabbits is slightly more alkaline than human blood. Experimental *Streptococcus hemolyticus* infections in rabbits produce a relatively marked acidosis, the pH of the blood varying from 7.65, which is normal, to 7.3 in an extreme case. The development of acidosis in *S. hemolyticus* infections in rabbits does not in itself play any effectual role in the mechanism of resistance.—Lester R. Dragstedt, *Jour. Inf. Dis.*, 27, 452 (1920).

Complement Fixation in Influenza With B. Influenzæ Antigens.—Complement fixing antibodies can be demonstrated in the serum of a considerable number of older children and adults convalescent from influenza by the use of *B. influenzæ* antigens. These antibodies are much less constantly found in children from 1 to 5 years of age. No definite antigenic relationship could be detected between the 16 strains of *B. influenzæ* with the serums tested. The results indicate that the influenza bacillus is pathogenic and infects many, if not all, patients with influenza. The complement fixation test cannot furnish sufficient evidence, however, to justify the conclusion that *B. influenzæ* is the sole etiologic agent in influenza.—Howard H. Bell, *Jour. Inf. Dis.*, 27, 466 (1920).

✝

Use of Washed Agar in Culture Media.—The standard extract medium with washed agar showed in many cases, when market milk was examined, a much higher count than the same medium with regular shred agar. Washing agar reduced its content of calcium and magnesium salts. A few experiments indicated that the removal of these salts was a factor in the cause of the higher counts. This point, however, is merely suggested by the results and not definitely proved. Since certain samples of milk show a higher count when plated on a washed-agar standard extract medium than on the regular standard extract medium, it seems evident that washing removes something detrimental to the growth of certain species of bacteria. This naturally suggests that a further study is needed of the value of washed agar in lines of bacteriological work where it has not been used.—S. Henry Ayers, Courtland S. Mudge and Philip Rupp, *Jour. Bact.*, 5, 589 (1920).

✝

Antibody Production in Human Beings After Injection of Pneumococcus Lipovaccine.—Agglutinins, complement-fixing bodies and protective bodies for pneumococci types 1, 2 and 3 are demonstrable in the serum of individuals vaccinated with pneumococcus lipovaccine. These antibodies appear in the serum rather late and are present to some degree for at least one year.—Katharine M. Howell, *Jour. Inf. Dis.*, 27, 557 (1920).

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